The Boy Scouts Hike Book

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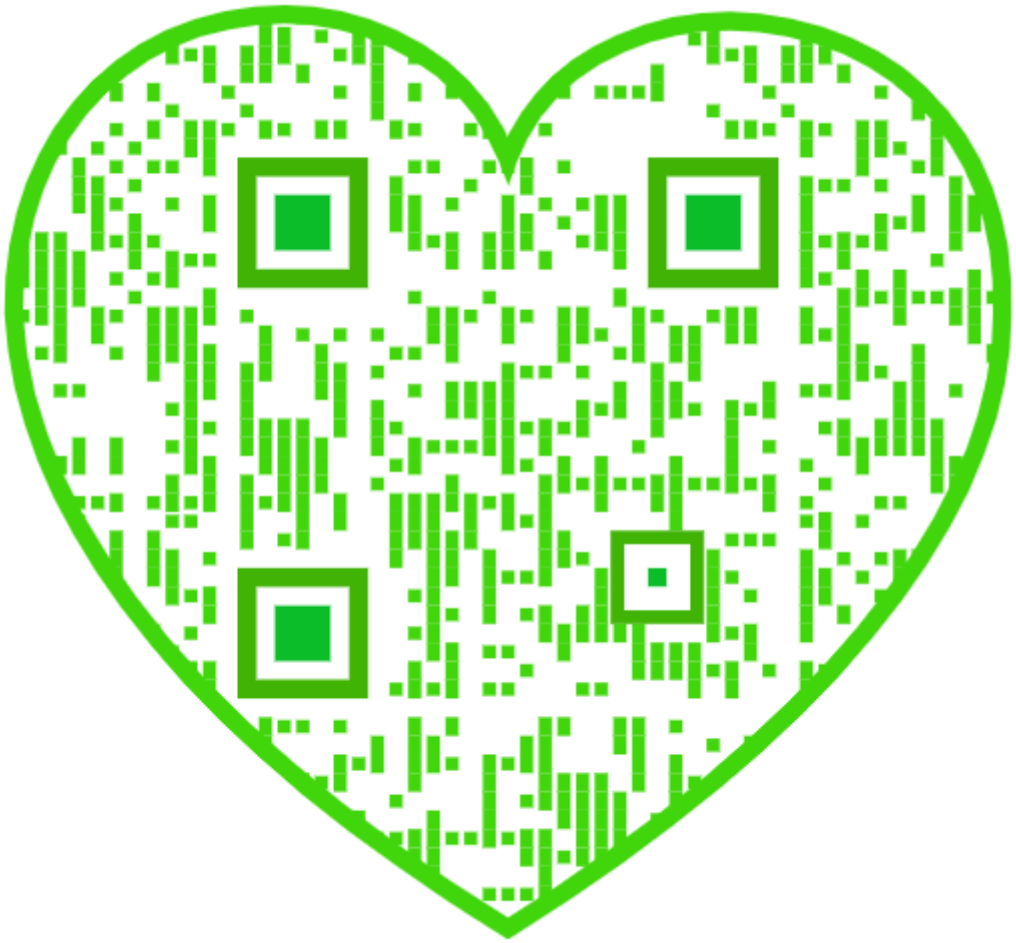

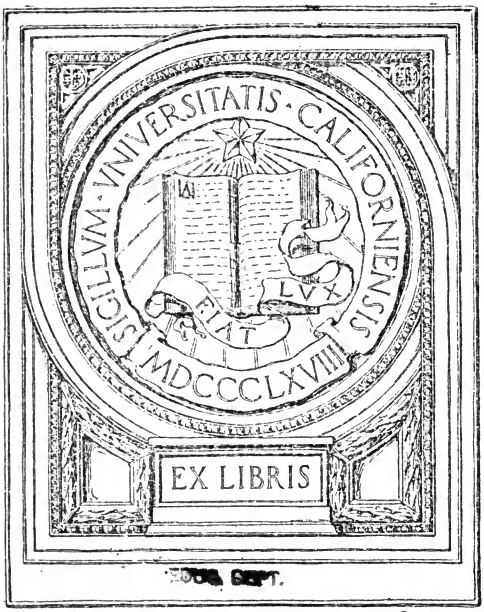
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THE BOY SCOUT'S HIKE BOOK

TOUCHING A HIGH SPOT

The turning point of a New Jersey troop's "fourteen-mile hike"

THE BOY SCOUT'S HIKE BOOK

THE FIRST OF A SERIES OF HANDY VOLUMES OF INFORMATION AND INSPIRATION

BY

EDWARD CAVE

WITH OVER 100 ILLUSTRATIONS

GARDEN CITY NEW YORK
DOUBLEDAY, PAGE & COMPANY
1920

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TO

THE MEMORY OF HIM WHO
THROUGH UNUSUAL TRIALS OF LIFE WAS
THE BEST SCOUT I HAVE EVER KNOWN
MY FATHER
THIS LITTLE VOLUME IS DEDICATED

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PREFACE

The purpose of this book and of others to follow is to give more detailed information about the special subjects covered than was found practicable in the official handbooks of the Boy Scout Organizations in this and other countries.

In order to cover the entire subject of scouting, so called, in a single inexpensive book of convenient size, it has been necessary for the compilers of the different Boy Scout manuals to abbreviate, sometimes to omit entirely, matter which a full discussion would necessarily include. The Boy Scout plan of organization provides for Scout Masters and others to fill out, from their own knowledge and experience, the said abbreviations and omissions, in talks to the Scouts, and this has been wonderfully successful. Still there is a persistent demand from the boys for more books. And it is my opinion, based on my experience as a registered and active Scout Master, in charge of a troop of forty members of the Boy Scouts of America, that books such as these I am undertaking to write are the kind needed. Not that existing practical books on camping, woodcraft, and kindred subjects of especial interest to Boy Scouts are lacking in merit, but simply because they are not written expressly to conform with the Boy Scout plan.

As to my experience, it has been my good fortune to do a great deal of scouting in one way and another. The knowledge thus gained has been enriched by my work as editor of various magazines devoted to outdoor life and recreation, and especially by the friendship of many sportsmen of wide experience, among them most of the authors of the best outdoor books published in this country during the last twenty years.

Naturally, the foregoing is not written for the boy, but for those who properly guard his interests — to-day, I am glad to say, more intelligently than ever before.

To the boy, Scout or not, who has broken all precedent by reading this preface, I have but one thing to say:

Let's hike!

Mamaroneck, N. Y.
July 1, 1913.

EDWARD CAVE.

CONTENTS

CHAPTER		PAGE
	PREFACE	
I.	LOOKING BACKWARD The value of experience. Influence habits acquired in play days may have upon one's success in life.	3
II.	HOW TO WALK Self instruction. The best exercise. Edward Payson Weston, Dan O'Leary, and other veterans, and some reasons for their wonderful records. Different gaits; care of the feet.	9
III.	REAL HIKERS Men who hike for a living, and their methods and outfits.	23
IV.	THE YOUNG HIKER Taking your own measure. Hot weather precautions. Care of the health. Proper clothing.	33
V.	THE HIKER'S KIT Various packs, and how packed. The kit, and how carried.	44
VI.	GRUB Grub lists, recipes and cooking for hiking trips. How to prepare and carry rations.	63
VII.	TENTS AND TENT MAKING The best tents for hiking. Materials, and instructions for making your tent at home. Various ways to pitch tents described. The hiker's bed.	76
VIII.	MAKING CAMP A spring hike in near-home territory down in Florida with an A tent for shelter.	96
IX.	HIKING ALONE A hike in summer to a Michigan bass lake, with a poncho for shelter and a fishing-rod for company.	108
X.	AUTUMN WINDS An autumn hike with a California patrol of Scouts, with tarpaulin tents for shelter.	123
XI.	ROUGH WEATHER Hiking in winter. A troop hike in Nebraska on New Year's Day. Clothing to wear. Charm of the wild places under a mantle of snow. Hiking on snowshoes, ski, and skates.	137
XII.	EXPLORATION Amateur exploration. Surveying. The modern Great Unknown.	152

CHAPTER PAGE

XIII. WOODCRAFT 167
The sense of direction. Practical observation. The lay of the land. Some precautions.

XIV. EMERGENCIES 182
If you get lost. Travelling by the compass. Forest fires, wind-storms and floods.

XV. OBSERVATION 197
Something about eyesight. Practice for the eyes. Studying tracks.

XVI. BIG THINGS 208
Big hikes. The trek cart. Hikes by bicycle, horse and canoe transportation. Pioneering.

XVII. USEFUL HINTS 225

ILLUSTRATIONS

PAGE

TOUCHING A HIGH SPOT . . . . . Frontispiece
The turning point of a New Jersey troop's "fourteen-mile hike"

"I'D GIVE MY OTHER LEG TO BELONG TO YOUR TROOP!" 36
First aid by the roadside on a hot day.

THE WOODCRAFT PATROL MAKE CAMP 122
Building a brush lean-to of real balsam boughs.

A SURE-ENOUGH SANTA CLAUS 166
An Idaho patrol on ski bring good cheer to a lonely settlers' cabin.

ILLUSTRATIONS IN TEXT

PAGE

THE HIGHWAY AND THE HARROWS 3
BOY SCOUT'S PACK 4
THE OLD-FASHIONED PICNIC BASKET 6
A MODERN BOY SCOUT'S PATROL CAMP 8
RIGHT POSTURE IN WALKING 10
THE BENT-KNEE STRIDE 14
RIGHT SHAPE FOR WALKING SHOE 16
WRONG SHAPE FOR WALKING SHOE 16
FOOT-STRAP FOR LOOSE SHOE 20
FRESH WATER FOR SURE 23
WEDGE TENT, LONG A WOODMEN'S FAVORITE 25
"DOG" TENT PITCHED IN REGULAR WEDGE FASHION, AND AS A LEAN-TO 27
THE PRESTON MESS-KIT 29
THE LAST LAP 33
THE SCOUT'S HIKING KIT 44
SOME PACKS 46
MORE PACKS 48
FRONT VIEW OF SCOUT'S PACK 54
A PRACTICAL MESS-KIT FOR SCOUTS 58
THE DITTY-KIT 59
BREAD-PAN WITH BAIL ATTACHED 60
BAKING WITH BREAD-PAN AND FRYING-PAN 68
CROSS-SECTION VIEW OF BEAN-HOLE AND DUTCH OVEN 72
CAMPING WITH A PHILLIPS COMBINATION TENT-BED 76
PLAN OF THE TARPAULIN TENT 82
PLAN OF TARPAULIN TENT ERECTED 84
OTHER WAYS TO PITCH THE "TARP" 86
PLAN OF THE PHILLIPS COMBINATION TENT-BED 88
TWO VIEWS OF PHILLIPS TENT PITCHED WITH TICK AND RIDGE-POLE 89
PHILLIPS COMBINATION TENT-BED SLUNG AS A COVERED HAMMOCK 89
PHILLIPS TENT PITCHED AS A LEAN-TO 90
PHILLIPS TENT AS A LEAN-TO WITH DOUBLE STRETCHER 90
PHILLIPS TENT GUYED TO A TREE, WITH TICK FOR TWO 91
A GOOD CAMP-SITE 96
HOW TO BUILD A FIRE 99
A HIKER'S RANGE 102

ILLUSTRATIONS IN TEXT — *continued*

PAGE

HIKER'S POT-HOOK 103
GOING IT ALONE 108
HOW TO BROWSE A BED 113
A CAMPER'S CRANE, OR DINGLE-STICK 116
A WIND-BREAK IS DESIRABLE SOMETIMES 117
LEAN-TO CHEER AND COMFORT 123
A REFLECTOR FOR THE CAMPFIRE 134
EVERY ROAD LEADS SOMEWHERE 137
HOW TO MAKE THE ALGONQUIN SNOWSHOE BINDING 145
THE HUITFELDT SKI BINDING 147
THE ELLEFSEN SKI BINDING 147
HOW TO RIG THE THONG FOR THE HUITFELDT BINDING . . . 148
HOW TO WEAR A BLANKET AS AN OVERCOAT 150
IN THE LAND OF "BEEN-THERE" 152
HOW TO MAKE A RIGHT ANGLE ISOSCELES TRIANGLE 153
THE "SETTLER'S JACKSTAFF" 153
RANGE FINDING BY THE RIGHT ANGLE SYSTEM 154
FINDING THE RANGE OF OTHER POINTS, TO MAP THE LAKE . . . 155
HOW TO MAKE THE KNIFE-BLADE SIGHT AND MOUNT ON THE ALIDADE 156
HOW TO MAKE THE PEEP SIGHT OF THE ALIDADE 156
SURVEYING BY INTERSECTION 157
SURVEYING TWO LINES FROM ONE BASE LINE 158
HOW TO PAINT THE STADIA BOARD 159
SURVEYING A ROAD BY THE TRAVERSING SYSTEM 160
THE DRUMLESS DRUMMER 167
HOW TO BUILD AND THATCH A BRUSH SHELTER AFTER THE PLAN OF THE OLD INDIAN CAMP 169
MAKING A LEAN-TO OF CORN-STALKS 173
HOW TO BUILD AND THATCH A BRUSH LEAN-TO 171
THE COMPASS ON THE GROUND 175
TAKE THE OTHER TRAIL 178
THE CHOPPED STEM OF A BENT-OVER BUSH POINTS THE WAY FROM CAMP 178
GETTING A MOVE ON 182
CASE OF THE CADDIS FLY 185
LARVA AND PUPA OF THE CADDIS FLY 185
LARVA OF THE DRAGON FLY 185
THE HELGRAMITE 186
HOW TO MAKE A LOST MAN'S RABBIT SNARE 186
TREE BLAZES 191
SEEN AND UNSEEN 197
TAME TRACKS 202
TRACKS UNMISTAKABLY WILD 203
AN EXAMPLE OF BAD JUDGMENT IN SELECTING A CAMP-SITE . . 205
THE PORT CHESTER TREE CART 210

PAGE

Detail View of the Trek Cart 211
Top View of Pack Secured With the Squaw Hitch 215
Horse Packed by Using the Squaw Hitch 215
Cross-tree Pack-saddle and Harness 216
The Pack-cinch 216
How the Jam Hitch is Made 217
The Cross-tree Hitch, Top View of the Pack 217
The Single Diamond Hitch, Top View 218
How the Single Diamond Hitch Secures the Pack on a Horse 218
Some Canoe-cruising Adjuncts to the Hiker's Kit . . . 220
Canoeist's Combination Grub-box and Table 220
A Scout's Suspension Bridge 221
Plan of Suspension Ropes and Key-pole 222
How the String-poles are Laid 223
The Fish-tail Drag 223
A Hiker's Cellar 226
The Scout's Auger 228
Flexible Blow-pipe 231
The Scout's "Digger" 233
The Soldier's Frying-pan 234
The Compass in the Sky 236
A Patrol Fire-jack 240
Transplanting a Seedling 242

The Highway and the Harrows

CHAPTER I

LOOKING BACKWARD

IT IS pleasant to look back over even the hardest trail. On our little eminence of earth or achievement, where we pause to rest a bit with a good task behind us, we are as fond of checking over the route we have come as we are of considering what lies ahead. Even in early youth, with all our love of the mysteries, we cling to experience as to a best companion. And truly it is a companion, a well tried friend, the source of all our pleasant memories and the best guide for our future.

So from this, the first council knoll of our little book, as in the others to follow, we shall not forget to look backward. And doing so, we must keep in mind the fact that even the most trivial experience may contain the germ of a great achievement — or a great mistake. We must remember that the habits we form in early life surely affect whatever we undertake in years following, and so constantly strive to go true to the mark. We cannot afford to cultivate in our recreation any trait or trick which may serve in time to hinder or trip us up in the serious affairs of life. In short, with all the free-

dom we enjoy, in this delightful pastime of hiking, we must strive always for efficiency, in the practical details.

Practical Boys.—This brings us first to the subject of reading — and writing, the mediums of our discussion. For the sake of a better understanding between us, and to assist in driving home and clinching the points I make in this chapter, I want you to know that this book is written from the viewpoint of one who got early experience in hiking behind a pair of harrows. There is a difference between plodding all day over cultivated ground, in the dust of a set of harrows, driving a team of horses, and hiking to the woods for pleasure. The farm boy's lunch-basket in the fence-corner is to the pack on the back of the Boy Scout as the North Pole to the South, although the edible contents of both may be the same. By the reversal of circumstances, however, it is my belief that, other things being equal, the farm boy makes the most practical hiker. And in this I hope I am right, for this is a practical book.

Boy Scout's Pack

Scouting Without Instruction.—Of course we boys on the farms never did any hiking in the sense described in this book. When we were able to we "went" on long trips on foot to various points of interest, generally with some definite object in view, such as picking berries, fishing, or nutting. Often we travelled in our bare feet, and we carried our lunch done up in a paper parcel. We never stayed out in the bush (woods) over night, because we had to go home to do

the chores. Nevertheless, we did a lot of just such scouting as is done nowadays by the Boy Scouts, learning much woodlore that we did not pick up in our daily life about the farm. We built dams and bridges, made rafts, wigwams and the like, gathered wild honey — and bee-stings — had sundry encounters with snakes and skunks, chased groundhogs, caught fish and learned to swim. Once in a great while we played ball and ran foot-races with the town boys, and beat them too. Chief of all, we managed in spite of deep water, the constant ambition to rob hawks' nests and the possession of two or three guns, to avoid drowning, broken bones, and gunshot wounds. Aside from a specially gorgeous black eye gained in a battle with clods, and an equally noticeable case of ivy poisoning, both of which it was my good fortune to exhibit, I do not recall that more than a single mishap ever befell any of the score or more of boys who made up our crowd. One was killed by being kicked by a colt, but he was in no sense to blame and could not have avoided it. It seems to me we instinctively took care of ourselves. It was not until I went to live in a city, at the age of fourteen, that I had companions who were drowned, who broke their bones, and who were shot, during play days in the open. Now, after more than twenty years, and with experience as a sportsman in twenty different states of the Union and six provinces of Canada, looking back over the trail I can see that the practical foundation I built as a boy on the farm has served me well in countless ways, both in recreation and in business.

"Wasted" Time.—However, when I was learning to manipulate a monkey-wrench tightening up the endlessly loose teeth of that same old set of harrows, little did I imagine I was acquiring skill and knowledge that was to form the basis of a practical understanding of automobiles that now makes me independent of automobile repair shops. Yet I distinctly remember how carefully I tightened every nut, much though I hated the task. The harrows were an old set, bought second-hand and had been neglected. Unlike the all-steel harrows of today, each tooth was set in a square mortise in the wooden frame, and held by a nut. The frame had dried and contracted, and rust had rotted the wood; so the loose teeth would turn around the wrong way. By the use of considerable energy, two monkey-wrenches and some washers, I tightened every tooth so it stayed put. And then, what did my father do but buy a new set of steel harrows and as good as give the old set away!

The Old-Fashioned Picnic Basket

I complained that my tinkering had gone for nothing—that we had derived no worth while benefit from it. Why had he not let me know that he was going to buy a new set of harrows? And now I recall, as clearly as if it were but yesterday, what he said:

"You haven't wasted your time," he replied. "No time is wasted that is well spent."

Food for Thought.—At the time I did not understand

the significance of his remark and paid little heed to it. But I tumbled to it after a bit, and it gave me a new pride in those old harrows. I could look back upon the half day I had spent repairing them as upon a day of notable achievement. I had done my work well — that was enough; I had profited by it, through having done it well and successfully. It was a new way of looking at things, and a most interesting one. I was set to thinking by it, and there opened before me a wonderful new field — the field of the development and enrichment of my own personality.

Now this is the pith and point of this chapter and this book, and of whatever other practical books I write: Looking back over the trail I can mark every advance I have made, from farm boy, printer's devil, mill hand, through a more than ordinarily varied experience. Also, I can check up the advancement of many other men. And the fact that stands out the most boldly is that the boy or the man who goes in for sport for sport's sake, for work for sake of the work, for service with the single purpose of being of use in the world, who strives for efficiency for the reason mainly that he finds joy in doing things well, gets by far the most good out of life, has the most joy in living. He may be out-distanced in many a race, but he never fails to get the real reward, the only prize that counts in the final analysis. Therefore, and as everything that is written has the tendency to mould thought, it is clearly my duty, in everything I write, to encourage the spirit of "doing for the sake of doing." This is my purpose.

And now, with our course clearly mapped out, we will kick along down the trail, through a series of talks all pitched in a jollier key and set to good march time.

A Modern Boy Scouts' Patrol Camp

CHAPTER II

HOW TO WALK

OF COURSE a Boy Scout can do a pretty good job of walking. One of the first things he does, as soon as he becomes a Scout, is to tackle the fourteen-mile hike that is one of the requirements he has to meet to get a First-Class badge. But what does he know about walking?

The average Scout hammers along on his trips, long or short, without giving particular thought to the actual walking. If he "gets there" he is satisfied. But there is a technic in walking which distinguishes the pedestrian from the mere stroller. And every Scout should aspire to master it, if only for the distinction of being one of the few to perfect themselves in an art universally practised in slipshod fashion.

It is very simple. No study or hard practice is required. You do nothing more than eliminate a few faults and pay attention to a couple of details — and commence to walk with your head as well as with your feet. It is almost like learning to tie a knot correctly. Once you learn the difference between a square knot and a granny, you never tie any more granny knots. And once you become a pedestrian you never again will be an ordinary walker.

Self-Instruction. — The best way to learn how to walk

is not, however, to attempt to improve your "form" in walking as you go about all your daily occupations. That would be too big a tax upon your memory, especially if you should happen to have a bad style to be improved, as for instance that common fault of most persons, the flat-chested posture. In standing and strolling about you would find it very difficult to remember to keep your chest arched. It would be physically fatiguing, too, and unless of a very determined disposition you would be apt to give it up as a hopeless tax on your resources. The thing to do is seriously to take up pedestrianism, say once a week at the outside, and at that time give almost your whole attention to it. Simply start the practice of taking a walk, regularly, and invariably make this walk *like a pedestrian.*

Right Posture in Walking

This walk may be a part of your weekly Scout hike, or a trip you have to make for one reason or another. But you should form the habit of making it a regular toe-and-heel stunt to which you give the same careful attention as you would give to any other things you might want to perfect yourself in.

On the Paper Route. — When a boy of fourteen or fifteen I had a morning paper route that took me far from the section of the town in which I lived. I used to deliver my last paper at about six o'clock, after which I had a long two miles to go home to my breakfast. On my way downtown in the early morning, to get my papers, and while on my route, I walked any

old way to get there. But when I started home on my "last lap" I got into a habit of hitting it up and trying to make it home in a half hour by the watch without running a step.

Now, you will find that if you walk fast you naturally keep your shoulders down and chest up, and look straight ahead of you, instead of at the ground. You put your feet down almost flat, heel first, toes pointed straight ahead, and you keep your hands out of your pockets, because you have to swing your arms to make speed. That is the way I walked on my last lap every morning, unless I happened to be carrying an umbrella to keep off the rain. By walking "against the watch" I was compelled to walk properly. And — the first thing I knew I had formed a regular habit of walking correctly. Meantime, I was having a fine time of it, for I had become a pedestrian and liked nothing better than to be on the go. Whereas I found no pleasure in idling along the streets with other boys so far as the walking was concerned, the minute I fell into my fast stride I was exhilarated. It was the same delightful sensation one felt when starting to run, but with this difference: when running, it soon left you, driven off by fatigue, but when walking, if a good walker, it stayed with you all the way.

I have always since been an enthusiastic walker, though I never have made a long walking trip. Perhaps if it had not been for the bicycling craze I would have become a long-distance walker, for I have made many long trips by bicycle, motor cycle, and automobile. The bicycle took the arch out of my chest and

put it on my back, and subsequent gymnastic and military training failed to entirely straighten me up again. And here is a point that I want to impress upon every Scout: once you get your growth the chance of improving your figure is minimized, so get that chest up where it belongs while you have the chance.

The Best Exercise. — Pedestrianism will set you up as nothing else will, and unquestionably is the best exercise and the shortest cut to physical fitness. Moderate gymnastic work will serve to round you out — and by moderate I mean gymnastic work that is not too strenuous — but should not be turned to until you are sixteen. This, however, I shall not discuss in this book. The main point I wish to emphasize here is that walking should be the foundation and beginning of your athletic training, and therefore should be taken seriously. There is nothing more important.

Of course the advisability of walking fast and with the chest up is by no means the sum total of what there is to know about walking as an exercise. Before discussing other details, however, I want to tell you about Edward Payson Weston, who despite his seventy-five years is the greatest pedestrian of modern times. Recently I saw him start from New York City to walk to Minneapolis, Minn. He expected to cover the 1,446 miles in two months. And he did. Now what do you think of that? Sounds strenuous, doesn't it? Well, in reality it was a mere pleasure jaunt compared to the trip he made three years ago; for at that time he hiked across the country to the tune of forty-five miles a day for seventy-seven days!

Mr. Weston's Wonderful Record. — Away back in 1867 Mr. Weston walked from Portland, Me., to Chicago in twenty-six days. That was forty-six years ago — and yet at that time he was no stripling, but a man in the prime of life. Four years later he walked 100 miles over measured roads in 22 hours, 19 minutes and 10 seconds. In 1907, forty years after establishing his first Portland-to-Chicago record, he beat that record by over a day. And in 1910 he walked from New York to San Francisco in 105 days. Now, as I have said, he has walked from New York to Minneapolis, averaging close to twenty-five miles a day.

Another great hiker who keeps going despite advanced years is Dan O'Leary. But five or six years ago he walked 1,000 miles in 1,000 hours. There are several other great walkers in this country, among them John A. Kornn and Harry Chester, both comparatively young men; but none is in Mr. Weston's class. All agree with him, however, in his claim that walking keeps a man young, and long, hard trips such as I have mentioned, instead of being injurious are good for the health. Certainly there is no other exercise in which one could indulge so vigorously as Mr. Weston indulges in walking, at his age, with good effect.

Different Gaits. — Mr. Weston has several different gaits, and changes them from time to time, on the walk, to rest different sets of muscles. The average person, however, does well to have two. You will note there are two cuts with this chapter, one illustrating how to walk, and the other the bent-knee stride. Neither can be said to be photographically accurate, but they serve

fairly well. The former needs no elaboration, further than as outlined toward the beginning of the chapter. The bent-knee stride is one taught in the French army, and used by many pedestrians as a change-off gait. I have found it rather difficult except when carrying a pack, when it is a component of my natural gait. Without the pack I call it my "tired-out" stride, as I seem to have to be tired out before I can walk it; then, however, it brings relief. The difference in it is, you do not snap the feet forward and bring them down heel first as you ordinarily do, but walk somewhat flat-footed, almost as you do when carrying a pack — if you know how to do that. "You lift the foot forward instead of kicking it forward" seems to describe it.

The Bent-Knee Stride

The regular travelling gait of most real pedestrians is not, however, the old-fashioned, stiff-kneed, military style, but, no matter what else it may be, allows a slight bend to the knee as the foot is set down. In other words, the knee "gives" a little as the weight of the body is placed upon that leg — but not so much as in the real bent-knee stride — whereas in the conventional military stride, which is carried to the extreme in the "goose step" of the German army, it does not. This gives one's gait a springy appearance suggestive of too much ankle motion unless the legs are watched. And by this "up and down" style of walking you will always know the good hiker. I have noticed particularly that every woodsman or hunter who has done

much walking has this gait. I once mentioned it to John Alfred Jordan of Africa, a professional hunter of much experience, and asked him how it happened that he had the stride, saying I had supposed African hunters generally rode mules or ponies. He laughingly replied that he had "as good as walked across Africa."

The Gait that Gets There. — A gait that is a favourite with me when I "know I have been walking," either with or without a pack, is one in which I swing considerably at the hips, take a long stride and bend the knee but little except as the weight is placed upon it. It gives me quite a roll, and makes me "toe" exceedingly straight, but it "feels good" I can tell you, and it gets you over the ground. I walked this gait as a hunter for quite a few years before learning that it was much used by most long-distance walkers.

Form in Walking. — In walking, your feet should point straight ahead, and come down flat, heel first. Writers who advise that the ball of the foot should touch the ground first, in common with the calisthenics instructor at school who likely as not advises the same thing, do not know anything about the practical side of walking. The former doubtless have in mind the ballroom, and the latter the gymnasium. On a long walk you will naturally fall into the proper way of handling your feet. Let your arms swing naturally also, and for their benefit, carry a stout stick — not a Scout staff, which is too long and awkward. Keep this stick moving, in one hand or the other, and it will exercise your arms better than the mere act of swinging them will. Keep the shoulders down, the chest up,

and the body erect. The right posture of the body is as important a factor while walking as it is in the schoolroom.

Care of the Feet. — Care of your feet will occupy your attention the very first time you make a real hike. A boy has a harder time of it with his shoes than a grown person, because his feet won't stay the same size long enough for him to get a good steady fit. He is apt to buy his shoes a trifle large so he won't "grow out" of them before they are worn out. Shoes that are too large, are, of course, much to be preferred to those that are too small. The former may produce blisters and calluses, but these one can get rid of, whereas the corns that come from tight shoes stick for keeps. Moreover, other bad results from tight shoes are crooked toes and ingrown toe-nails, which are apt to disable you permanently for anything like long walks. The diagrams herewith show most conspicuously how the great toe is bent out of its natural position by the "neat looking" but badly designed shoe commonly sold. One thing you should insist upon, in every pair of shoes you get, no matter for what wear they are intended, is that the inner border be straight, as shown above. For hiking, in addition to this it should be broad across the ball of the foot and have a low heel. It is not necessary that your shoes be the "square-toed" kind, and, except for wet-weather use, they need not be heavy. But they should always have a *thick* sole (half an inch), and a

Right Shape for Walking Shoe

Wrong Shape for Walking Shoe

soft upper. The best way to get such shoes, short of having them specially made, is to buy a good pair of summer weight and have them double tapped right away, before you wear them. This gives you the necessary thick sole for making long hikes, with an upper which will conform to your foot better than will the heavy upper of winter shoes. Please remember that I am now speaking of footwear for pedestrianism. Stout, high-laced (eight- or ten-inch) boots sold for outdoor winter wear are desirable for wet-weather going off the roads. For fair-weather wear off the roads, a moderately thick sole is better than a thick one. For all ordinary purposes ordinary shoes will be best, provided they are the proper shape.

Breaking in Shoes. — A good way to break in a pair of hiking shoes, tried out and approved by our army, is to put them on over a pair of wool socks or stockings, stand in a pan of lukewarm water until they are well soaked, and then go out and hike until they have become thoroughly dry from the heat of your feet. They will now conform to your feet, and be as comfortable as old shoes. Give the uppers a light dressing of neat's-foot oil or melted tallow, well rubbed in, to soften them, but not for the purpose of making them waterproof.

Shoes that have the pores of the leather filled up with oil or other waterproof dressing are unhygienic. Therefore, apply such dressing only when compelled to by wet weather. Neat's-foot oil is the handiest and perhaps the best all-around dressing. Melted cocoa butter is excellent because when it cools it congeals, and so fills up the pores of the leather and the needle-holes of

the stitching. Melted tallow is the old stand-by, and is improved by melting in with it one part of rosin and two of beeswax to three of tallow. The shoes should be warmed (preferably in the oven of the kitchen stove, where they should be placed on a couple of pieces of kindling-wood), to open the pores of the leather before the dressing is applied. Dressing should be applied with a cloth and well rubbed in with the hands. Get plenty on the seams. To make sure of reaching the stitching that holds the upper to the sole, put some of the dressing in a small oil-can and squirt it into the crannies.

To Dry Wet Shoes. — To dry wet shoes, never place them near a fire, as this will harden them so they will hurt like sixty when you put them on. If you can get some oats, take a panful and heat in the oven, and fill the shoes with them when hot. They will absorb the dampness. Change damp oats for dry. Clean gravel does quite well as a substitute for the oats. In camp, after the supper fire has burned down to ashes, drive a couple of green sticks into the ground among the ashes, and put your shoes on these upside down. The heat from the hot ashes will dry your shoes. To dry moccasins in this fashion they should be well stuffed with dry brush to keep them open and prevent shrinking.

The Best Stockings. — As for socks or stockings, the best for hiking, in summer or winter, are of wool, thick and soft. Wool absorbs the perspiration or any chance dampness from the outside, and makes the best cushion to preserve the foot from chafing. Mr. Weston uses

those made of natural gray wool that has not been dyed. The socks or stockings, like the shoes, should be a good fit. A sock that is too small is productive of almost as bad effects as a small shoe. The thicker the sock the greater it will compress the foot and crumple the toes, and as thick socks are recommended for hiking, careful attention should be paid to selecting those that fit properly. Those that are too large, on the other hand, will wrinkle, and the wrinkles will chafe the feet. When the socks lose their softness, from repeated washing, they should be discarded as unfit for hiking, whether worn or not. The same applies if they become shrunk, consequently too small.

Lacing the Shoes. — To keep my hiking shoes snug over the instep and comfortably loose around the ankle, I lace them tight half way and there tie a square knot; then I finish up with the laces rather loosely engaging the hooks. There is a way of lacing an Oxford or low shoe described in the official manual of the Boy Scouts of England, also that of the Canadian Boy Scouts, called the "Scout's way," that I have seen copied in this country, but which I cannot recommend. It does nothing more than insure that the shoe will not become untied — because it is not tied in the first place. But by the same token it makes necessary the tucking of a long end of the lace down in the shoe at the side of the foot, does not lend itself to lacing the shoe tightly over the instep and loose about the ankle as above described, and is awkward to do, consequently slow. Oxfords or low shoes being unsuited for hiking, on this side of the Atlantic at least, because the dirt cannot be

kept out of them, I would not mention the "Scout's way" were it not that it can be adapted to high shoes, with hooks toward the top in place of the eyelets.

How to Fence a Blister. — Never start on a long hike with low shoes, or with new ones that have not been well broken in, for you will surely regret it if you do. If in spite of proper precaution you "raise" a blister, you should not open it while on the march, but wait till night to give it proper treatment. In the meantime, to get relief from the hurt from it, or from a chafed place, get out your first-aid kit and take from it a small square of absorbent cotton and a spool of adhesive plaster. With the scissors from your ditty-kit cut a hole in the square of absorbent cotton the size of the blister or the chafed place. Lay the cotton on your foot so the hole in it will be over the blister or chafe, and secure it in position with a couple of two-inch strips of the adhesive plaster. Replace sock and shoe, and your limp will have left you. To further insure yourself that it does not return, put on a marching strap, as shown in the illustration. This will hold the shoe more snugly to the foot and prevent chafing.

Foot-Strap for Loose Shoe

Take It Easy. — Always take things deliberately in starting out. Get well limbered up before you commence to walk fast, doing the first couple of miles at a moderate pace. Stop once in awhile for a rest of five or ten minutes, and at these times elevate your feet if you can. One thing I want to impress upon you particularly is that the fellow who strikes a moderate pace

and *keeps going*, with only short rests, will go farther and with less fatigue than he who travels by spurts and long rests. Too long a rest results in stiffened muscles, and you are tired out when you should be just getting nicely started. Moreover, if you are perspiring freely when you stop, too long a rest is apt to result in your getting a chill. Start on immediately you begin to feel cooled off. At your nooning place, or after reaching your destination for the day, do not sit around in wet clothing. Change as soon as possible to dry underwear, or at least put on a sweater or a coat. For more on this subject see Chapter IV.

It is an excellent plan when on a hike to take off shoes and socks at least at mid-day, so that feet, socks, and shoes may cool. Turn your socks inside out to cool, and when you replace them put the one you had on the right foot on the left, and vice versa. If you sit awhile before starting on, the heat of your feet will complete any necessary drying the socks may need. Of course another way is to replace your damp, warm socks with clean ones. But personally I prefer to keep only clean socks in my pack, so make my change after supper at night, at which time if in camp, I wash the ones I have worn during the day.

To Dry Clothing in Camp. — Now for a hint on drying socks in camp — and any other clothing. Do not attempt this at the campfire. I burned more than one pair of good socks before I learned better. Build another fire and let it burn down to ashes. Over these hot ashes build a framework of green sticks, so raised upon stones or sticks out of reach of any coals that none

will catch fire. Lay your socks or wet clothing on this drying frame, and you will be surprised how quickly they will dry.

After the Day. — The last thing before turning in, if you have punished your feet during the day, give them a cold bath and a thorough rubbing with a coarse towel. Put some salt in the water if your feet are "raw" and you are using some sort of vessel to hold the water. Sponge your legs, and rub them well, too, in the same way, and afterward with your bare hands the way a runner or a bicycle rider does after a race — taking a rub-down, he calls it. Sensible attention to your feet and muscles before turning in for the night will mean much to you the next morning if you are to resume your hike. And, my! how refreshed you feel when you douse the light and hit your blanket.

Fresh Water for Sure

CHAPTER III

REAL HIKERS

NO MATTER how much one may know about a subject, one can generally learn something from the other fellow, especially the man who has "been there." So it is well for us to look up some real hikers before we go any further, and see what can be learned from them. And by real hikers, of course, I mean men who make a business of going on long trips with packs on their backs.

Necessity has mothered many an invention on the Long Trail. And it is these we are interested in, rather than the "improvements" turned out by amateur hikers who have never seen the other side of the hills they view every day from their own dooryards, which have a way of finding their way into print as the real thing.

Practical and Impractical. — Set a man to work at a hard job, and before long he begins to adopt ways and means of making his labour easier. The more intelligent he is, up to a reasonable limit, the better he suc-

ceeds; that limit is the top-mark of his gauge as a *practical* man. To explain, I will say a man may be very intelligent, yet very impractical. For instance, I once stopped in at the studio of a famous painter whom I am fortunate to know as a friend, and found him working with some of his paintings which he was in a great hurry to get off to a big exhibition. His frame maker had disappointed him at the last minute, and he was trying to cut down some old frames that were too large to fit the pictures. And what a time he was having! He had the proper implements, but my, how awkward he was! He couldn't make a straight cut with his saw even when the saw ran in the guide-cuts of his mitre-box. And when he came to nailing the corners of the moulding, he bent the nails and split the wood in heartrending fashion. The funny thing about it was that it took me so long to convince him that I really could be trusted to help him, and that he then quite crossly asked me "why I hadn't told him in the first place that I was handy with tools." This man is unusually intelligent, and a sportsman of much experience. If he were to invent a new packsack, it would certainly attract the attention of city sportsmen, because of his prominence. But his invention would be pretty apt to cause some amusement among his guides, if he ever took it to camp with him.

The Kindly Outfitter. — Tons and tons of useless camping equipment have been carried into the woods by impractical sportsmen and there given away to guides or abandoned. Camping goods manufacturers are not very particular as to the practical merit of an

article, so long as it will sell well. The more they can get you to buy the better they like you, no matter what you do with the stuff when you have it. I have known the best outfitters in New York to sell a man four times the outfit he needed, because he submitted to their "judgment," and had plenty of money. And withal I was country bred and raised, and consider myself fairly practical, I must confess to having bought quite a bit of equipment that I have found no good use for. I even once took a pair of eleven-inch-hob-nailed boots on a canoe trip in Nova Scotia. And I shall never forget the look on the face of my guide, Charlie Munro, when he saw them. But I had revenge on Charlie: I gave him the boots, and they were too big for him, too.

This same guide and his cousin Horace Munro, who paddled in the stern of the canoe of my friend, on this trip, are just about as practical a pair as one could hope to camp with. But their pack-straps were, and perhaps still are, miserable makeshifts, consisting of a single strap worn around the shoulders and across the chest. This is, however, the common pack-strap of Nova Scotia, and the reason it has never been improved doubtless is that Nova Scotia is not a country of long trails. The pack-sack tripper is never met there, no more than the pack-horse; every one travelling off the roads goes in a canoe, or in winter, hauls a sled. What back-packing there is comes on the canoe carries, or portages, as they are called in Canada.

Wedge Tent, Long a Woodsmen's Favorite

The Home of the Hiker. — The North is the land of the real woods hiker, in whom we are most interested. The timber-cruiser, the land-looker, the prospector, the fire warden, the hunter and trapper, ranging the lone lands of Minnesota, the Upper Peninsula of Michigan, and northern Ontario, are the fellows we are trailing in this chapter. True, the pack-sack is worn to a certain extent by prospectors pretty much everywhere, including even the American Sahara, and more or less regularly by forest rangers, telegraph linemen, mail carriers, guides and others scattered through the Pacific Coast mountains, all up and down the American and the Canadian Rockies, and out on the Alaska peninsula. We will not forget them, however; for the lore of the hiker as collected in this book is gathered from all sources furnishing practical ideas suitable to the uses of the Scouts.

Primarily the Boy Scouts are interested in woodcraft, and the great majority of them take hikes in woodsman fashion. This is naturally a wooded world, despite its prairies and plains, its bad-lands, its deserts and wild mountain wastes. In the early days of this country every explorer, every pioneer, was first of all a good woodsman; our first plainsmen were all transplanted woodsmen. In recent years, however, the Lake Superior country has been the stamping ground of the best type of woods hiker, from whom the Boy Scouts can learn the most.

The Woodsman's Kit. — Perhaps the most distinctive thing about these Northern woodsmen is (I might better say was, since they have almost all gone, along

with the white pine) their hiking kit. They have developed the best outfit that ever went over a trail, bar none. And, in passing I may say it is very funny, to my mind, to see Eastern sportsmen just about every year "discovering" some wrinkle that is older than a lot of fair-sized towns in the Lake Superior country. In this connection I do not refer to methods in hunting and fishing, which is just as fruitful of amusement, but merely to outfits. I know of a couple of much-advertised tents, a patented frying-pan or two, and several other things commonly supposed by Eastern sportsmen to be recent inventions, that were worn out by the lumbermen who originated them before the first sports-

"Dog" Tent Pitched in Regular Wedge Fashion, and as a Lean-To

men's outfitter got out his first catalogue. The Northern woods hiker's outfit, of course, has taken small cognizance of inventors and patents. Much of the time it has been "homemade." And it has even outlived its first and best patent — that covering the Poirier pack-sack, which latter I shall discuss in a later chapter.

The Northern woodsman's outfit, boiled down for a short trip, or the grown-up counterpart of the kit needed by a Boy Scout for any kind of trip in these days of abundant grub-supply bases, setting aside individual preferences, standardizes about as follows:

Pack-sack, single-point suspension, 12-oz. brown canvas duck; weight 3 lbs.

Blanket double, all wool; weight 5 lbs., for cold weather, 10 lbs.

Tent-cloth, "balloon silk," 88 x 142 ins., including hems; weight $3\frac{1}{4}$ lbs.

Poncho, pantasote, 54 x 84 ins.; weight $3\frac{1}{4}$ lbs.

Axe, choice varies much, and weight depends on the season; weight $1\frac{1}{2}$ to 5 lbs.

Frying-pan, sheet steel, $1\frac{3}{4}$ x $8\frac{3}{4}$ ins.; weight $1\frac{1}{4}$ lbs.

Bread-pan, sheet steel, double tinned, $3\frac{1}{2}$ x $8\frac{1}{8}$ ins.; weight 14 oz.

Cooking pot, with lid and bail handle; sheet steel, double tinned, $3\frac{1}{2}$ x $7\frac{1}{4}$ ins.; weight 14 oz.

Cup, sheet steel, double tinned, $2\frac{3}{8}$ x 4 ins.; weight $2\frac{1}{2}$ oz.

Plate, sheet steel, double tinned, 1 x $8\frac{3}{4}$ ins.; weight 4 oz.

Butcher knife, for all-around use, table fork, teaspoon, and tablespoon.

The Grub He Totes. — Added to this there are: extra underwear (seldom carried except on long trips) and socks, extra flannel shirt, miscellaneous other personal equipment, and last but not least the grub, for the hiker's needs on a week's trip weighing from 10 to 15 pounds, or even a pound or two more, all according to circumstances and individual appetite, notions, etc. Some expert hikers can get along comfortably on little more than a half pound a day of the kind of provisions they tote, and this without depending on game or fish; others require as much for a single meal, and consider they are going light at that. Uncle Sam gives his soldiers about 22 ounces of grub for a meal for individual cooking when the soldier is "thrown upon his own resources." But this includes fresh vegetables (8 ozs.) which the woods hiker cuts out. No doubt the soldiers would too, if they were hiking "on

their own." The Hudson's Bay Company's allowance per day is 2 lbs. 5 ozs., and an extra day's ration is allowed for each week of the trip.

What It Weighs. — This gives our husky timber cruiser, or prospector, or whatever he may be, a back load of about to thirty pounds, which is as much as any man who has "been there" wants to lug around with him. True, some carry nearly half as much again, but mostly on longer trips. Under some circumstances packs of sixty and seventy pounds are boosted over many a long trail, but that is *packing*, not hiking. Our hiker carries his load all in his pack-sack, with the possible exception of his axe. This, if short of handle, may be carried on the belt, though generally it is strapped on the back of the pack. The blanket is folded in the tent-cloth and placed so it will be next the hiker's back, to ease the sharp outcroppings of other contents of the pack. The mess-kit, including the frying-pan in a bag of its own, is generally placed in the centre of the pack, frying-pan side outward. Underwear goes in a small light clothes bag in the bottom of the pack, and next on top of that and both sides of the mess-kit the provisions are stowed, for the most part in small cotton bags. The hiker's ditty-bag, containing personal equipment, is near the top, where he can get at it

The Preston Mess-Kit, an Outfit for Going Light that Represents What Some Fastidious Woodsmen Call "Jewelry"

easily. And for the same reason, on top of all, right under the flap, is the poncho.

How He Dresses. — The pack-sack tripper seldom if ever wears a coat, for the same reason that the canoe cruiser does not: it is a nuisance. A sweater or an extra flannel shirt is better. Generally he prefers a mackinaw shirt. His trousers are preferably of woollen material, usually mackinaw or kersey, and he invariably wears woollen underwear and socks. And as he travels the woods, his footwear is the kind that is made for the woods. In the winter, for snowshoeing, he wears moosehide moccasins, or if he can't get real moosehide, then moccasins of buckskin. In these he wears never less than two pairs of heavy woollen socks, sometimes three, sometimes four pairs. For wet-weather wear, and on the trails, in winter, he is apt to wear the conventional lumberman's rubbers instead of the moccasins, or a pair of "cruisers," which are shoe-packs with the addition of sole and heel. For open-season wear, he is as apt to have on a pair of driving (river driving) shoes as anything else. These are made to stand constant use in water and naturally are good for anything, even a backwoods dance. Instead of the driver's spurs, or caulks, however, the woods hiker will have a few scattered hob-nails. They lend safety in fording streams or treading a log, in rock climbing and in going up and down hills. And in this connection I want to say that the fellow with a pack on his back "goes around" many a place that without his pack he would take with a hop, skip, and jump. As for his head covering, when it is not too cold

he wears a felt hat with a moderately small brim that must be neither stiff nor "floppy." A stiff-brimmed hat is as big a nuisance in the woods as a soft-brimmed one is on the plains. In the former case the bushes are forever mischievously reaching the stiff, unyielding brim and pushing the hat off, and in the latter the wind is always flapping your "hat-tails" in your eyes.

The Woodsman's Way. — Thus outfitted and dressed, our Northern trail blazer goes his way, in most sober and businesslike fashion, with his pack carried low and his pants rolled high. Compelled to carry his house on his back, he early formed a rigorous habit of saving his strength, so makes every step count. And by the same token he has fallen into the estimable practice of making everything he does count for him. When he sets about making his camp for the night, he chooses his camp-site, cuts his firewood and the browse for his bed, pitches his tent, builds his bed, cooks his supper, all without once "crossing his trail," or in other words without making a single unnecessary move. He does each thing right the first time, and he does each thing at the right time — all quietly, smoothly, without any fussing about. If you happen to be so fortunate as to be camping with him, you never hear him say, "Where is that axe?" or "Who saw my knife?" He is so thoroughly and beautifully right that you have a hard time to keep from voicing your admiration. But you are the only one who notices it. He is not showing off. It is his way, and as natural to him as it is that he cuts one kind of wood to make the best fire to cook over and another kind for the night fire, or that he has a

businesslike hiking outfit. These things measure his efficiency, and in his sober, sure way he measures pretty high, not only as a woodsman but as a man. A pretty good way to take example from, don't you think?

The Last Lap

CHAPTER IV

THE YOUNG HIKER

HIKING for recreation and experience is quite different from making a business of it. When you as a Scout emulate the professional woods hiker be sure you do not go too far. In your case the hike should never become hard work, whereas in his it always is. Another thing you are apt to overlook is that, no matter how well developed you may be, you do not possess a woodsman's strength and stamina.

If you think it over, you will realize that you should not expect even to play second fiddle to the woodsman. In fact, after a little thought you will agree a jewsharp about right for you. You see, the woodsman is not only a grown man, but he is the kind of man who is best fitted for his job — a picked man. Of every hundred who are choppers, teamsters, and log drivers and the like, in the Northern woods, only one or two, perhaps, qualify to hit the Long Trail, scouting for timber, ore, waterpower or what not, or as a game or fire warden. These are the top-notch men, the fellows with good feet, good legs, good wind, who can hike circles around the ordinary chopper and are efficient in other ways besides. And — it is a cold, hard fact

that the ordinary chopper in his turn can hike circles around *you*.

Taking Your Own Measure. — These are outdoor men, who have been hiking over uneven ground all their lives. As a mountain horse can go with comparative ease over trails an ordinary city horse could not travel at all, so these fellows find easy going where many a city man if he were to attempt to follow with a similar pack would be hopelessly bogged down. They climb steep banks, jump gullies, run marshy places, and scramble over rocks and logs almost as easily with a thirty-pound pack on their backs as the average city man could follow them uncumbered. Take into consideration this natural skill and superior strength, and the fact that the woodsman is fit all the time, or, athletically speaking, in constant training, and you will realize that when *you* attempt to do half as much as he does, you are tackling a hard job.

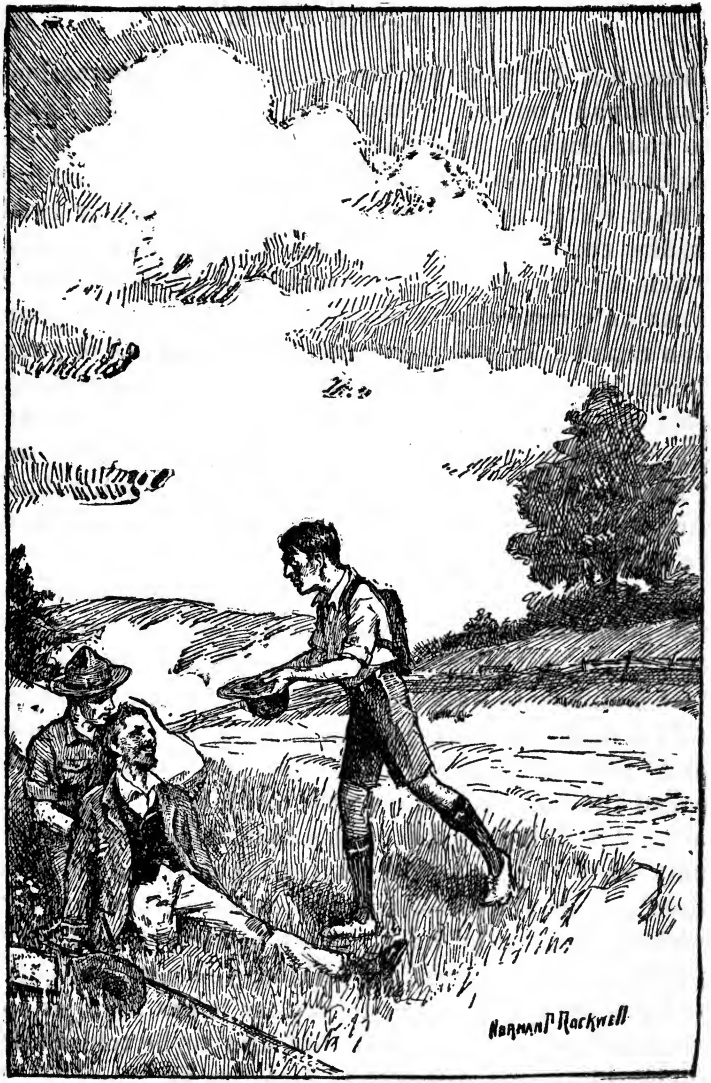
Now! On any pack-sack trip lasting for even a day or two you are compelled to carry more than half as much as the woods hiker takes on a week's trip. Your tent-cloth, poncho and blanket are just as heavy as his. Your mess-kit is a trifle lighter, and you will not carry a change of underwear, which he may. But when it comes to eating, you are again in his class, or will be when your hiking appetite hits you. Figured up one side and down the other, and every kind of a way, it looks like a twenty-five pound pack, at least, for you. What is to be done?

Figure It Out. — I'll tell you. If you want to get your money's worth out of this book, don't "skim"

through it, but search every paragraph for information and sound counsel. Then "cut your coat according to your cloth." You may be well able to hike fifteen miles a day with a twenty-five-pound pack, or twenty-five or thirty without one, after the first day or two. Again, the weight of even your blanket may be too much for you to carry for more than an hour's hike. I can only generalize, and you must depend upon your own capabilities and judgment, and the advice of your Scout Master or patrol leader. I am sure, however, that your success as a hiker depends first of all upon your walking ability. That is why the chapter on "How to Walk," in this book follows the introduction. And I am quite sure that every Boy Scout qualifies to become a good walker.

As you will have noticed, we have not yet come to the point of discussing *your* pack, how to carry it, and all the rest of pack-sack hiking for you. As I have just said, how to walk comes first. Next you had to be told something about the men you get your inspiration and your examples from. You will remember I called the pack-sack trippers the real hikers. And they are. A walking trip becomes a hike in its proper sense only when the walker leaves the highways and "civilized" meals and beds, and strikes out across country with his hotel on his back. Now, before you load your pack and strike out in this fashion, you need not only to have the question put to you, as it has been, as to whether you are fit or not, but also to be told a few hiking hints that will help to *keep* you fit.

Don't Overdo It. — To return to the subject of plain,



"I'D GIVE MY OTHER LEG TO BELONG TO YOUR TROOP!"
First aid by the roadside on a hot day

everyday walking, as discussed in Chapter II, you know that a fourteen-mile walk is one of the First-Class tests of the Boy Scouts of America. And if you have taken that test you know that you have to hustle right along to do three and a half miles an hour, and that fourteen miles is a good "satisfying" tramp. That should be experience enough or knowledge enough to guide you in seriously taking up pedestrianism, as I have advocated. But when you have gone through the stages of starting with a five-mile walk, increasing the distance to ten miles and then fifteen miles, do not be in too big a hurry to keep on stretching out your day's tramp. Fifteen miles is far enough for all the *practice* you need. It may in fact be too far, in your particular case, local conditions and your physical make-up taken into account. You want to remember this. And to make sure you are not overdoing things, let it be a rule to cut down your distance if, when in good condition, or in practice, as some would say, you are unable to finish the walk without being tired out. If you have to finish your last few miles "on your nerve," despite regular practice, something is wrong.

Hot-Weather Precautions. — In hot weather, be very careful that you do not suffer sunstroke. If you ever see any one so overcome you will need no further warning, I assure you. During the hot months, start your walk or hike at daybreak (not sunrise) and you will have half your day's journey over by the time the sun begins to get hot. If travelling cross country this may not always be feasible, on account of heavy dew. And if on a camp hike it will delay you

somewhat to prepare your breakfast and break camp. Under no circumstances, however, should you keep going through the heat of the day. That is the time to slow down and lay up in the shade.

If out in the sun when the thermometer is above 85 in the shade put three or four large green leaves inside your hat, on top of your head. When warm be careful not to drink too much water, and especially take very little of water that is cold. Never mind how freely you perspire, it's good for you. Do you know that the perspiration that your pores exude is nature's method of cooling you? It is, and the principle is the same as that by which you cool the water in your canteen — evaporation. To cool the water in the canteen you wet the canvas or the felt on the outside of it, and hang it in the shade, where the breeze will strike it. And as the canteen begins to "sweat" the temperature of its contents goes down. In the same manner nature keeps your temperature down. The next time you are perspiring freely from the heat of the sun, put your hand inside your shirt and feel how cool your damp skin is.

If You Get Too Much. — Don't worry so long as you perspire freely. But if, when out in the sun on a hot day you stop perspiring, and your skin over your ribs gets dry and hot, and your head begins to feel the pressure of too much blood — watch out! You'll be a first-aid patient if you don't. Find a cool place at once, lie down, loosen your clothing and bathe your face, chest, and wrists with water; drink as much cold water as you want. These are proper preventive

measures for threatened sunstroke, which should not be confused with heat exhaustion. The latter is not to be expected on a hike, though it may come from carrying a heavy pack over a hard trail on a sultry day. The symptoms are different, the most noticeable thing being that in sunstroke or a near approach of it the face is red and there is no perspiration, whereas in heat exhaustion the face is pale and covered with sweat. You doubtless know your first aid, and if not you have but to refer to your Manual. I will say, however, that in case of heat exhaustion you should not bathe your face, chest, and wrists, or apply any cold externally. Drink a little cold water if you like, but get some sort of stimulant as soon as you can.

To Avoid Chill. — On a hard camp hike, such as mountain climbing or general exploration, which every Scout enjoys so much, take along an extra flannel shirt and change at noon, carrying the damp shirt on your back to dry if the weather permits. When you get to the mountain top or other exposed place, the extra shirt hanging on your back will take the place of a sweater to pull on as a chill preventer. If compelled to ride in a street-car, carriage, or automobile at your journey's end, be sure to slow down for the last couple of miles of your hike, to give your damp clothing a chance to become dried by the heat of your body.

A mistake most beginners make is to wear too much clothing on a hike. If you travel at even moderate speed this is very apt to result in your perspiring too freely, and in hot weather increases the danger of sun-

stroke. Generally speaking, a coat is nothing but excess baggage. A sweater is decidedly better. In cold weather, however, a Scout coat worn over the sweater will break the wind. The best shirt is of flannel, both for summer and winter, the summer shirt of course being light weight. As for underwear *for hiking* I advocate light or moderate weight pure wool undershirt and drawers for winter, and for summer, light weight short-sleeve wool undershirt and short cotton drawers of "running pants" style. If wearing shorts, leave off the drawers; if the weather is distressingly hot and you have on a flannel shirt instead of one of khaki, leave off the undershirt. But whatever the weather or time of year, have wool next to your body *when hiking*, especially if carrying a pack. It absorbs the perspiration and prevents chill, whereas cotton underwear retains the perspiration and becomes a clammy chill-inducer of the worst kind the minute you begin to cool off. If wool did not prevent evaporation it would be ideal for hot weather wear. Even with that fault, it is best for hiking.

Keep Cool. — The common practice among Boy Scouts on camp hikes of carrying the blanket in the soldier's old-fashioned roll across the shoulder is a very bad one in warm weather. And it is in warm weather that most of their camps are made. No matter how neatly the blanket may be rolled, it makes a big, hot bundle for even a man to carry in this fashion. I always carry everything (except sometimes tomahawk and canteen) in one compact pack on my back, save of course my gun or my rod if on a hunting or

fishing trip. I wear no coat, and I generally want my vest open, my tie untied, and my shirt collar unbuttoned; and I am pretty apt to have my sleeves rolled up. I want whatever breeze there is to get a chance to keep down my temperature. And by the same token, my hiking breeches which in summer are of khaki, cut in the conventional "long pants" style, are worn turned up above the tops of my shoes. This gives me a rig almost as cool as shorts and stockings, without being conspicuous. And it is nothing different from what I'd wear if I were driving a team or doing any other rough work in the open (but not in the deep woods), except that I'd prefer blue overalls to the khaki, which show the dirt too easily. I tell you these rather personal details merely to impress two things upon you: First, that I consider the hiker's clothing should be practical instead of ornamental, and secondly, that I do not prescribe for others what I myself would not use.

As to Shorts. — For boys, however, I recommend shorts if the hike does not include too many brier patches. And although I do not think shorts should be worn except for summer hikes and in camp, and then only if all wear them, I want to say it is a mistaken notion that the wearing of trousers "stagged off" above the knees is an "English idea" that does not square with conditions in this country. Shorts are worn by some English hunters in the African jungle, where the going is about as rough as any we have. For the benefit of the boys where the shorts have not caught on, I reiterate that they are all right, and

hygienically superior to any other style of trousers for hot weather wear. But get the English style, for goodness sake — those that conform to the leg.

By this time, even though we have been taking it easy, you must be ready for a drink. Take a little one. And remember that sentence as a rule to go by every time you are tempted to gulp down a cupful or two of cold water to thoroughly irrigate the "dry place." When hot and tired, drink slowly, and sparingly. You will stand a much better chance of finishing the hike if you do. Besides, cramp (from acute indigestion brought on in this way) hurts like sixty. Use all precaution to get good water.

The same rules apply to eating, to this extent: Do not start out immediately after a hearty meal. And while on the road, do not eat anything. For your lunch eat moderately, and give digestion a chance before starting on. For suggestions as to what to eat on a hard hike, see the chapter on Grub.

Don't Fight Your Pack. — Before you go far, if carrying a pack of over-night proportions you will begin to learn the wisdom of having everything just right before you start. With a good pack on your back you will be in a position to laugh at the fellow cluttered up with bundles and losing something every little while. But by and by even your good pack will begin to ride you pretty hard. Thank your stars if your shoulder straps are neither too stiff nor too soft, and you haven't got something that feels like a brick trying to gouge a hole in your back. Thank them, and go right along carrying that pack just the way it hangs — if it hung right in the first place. It is good old trailer's

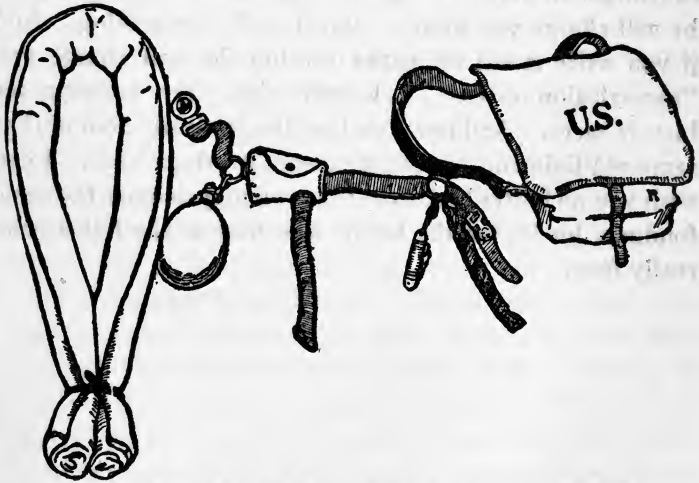
logic that you must not "fight your pack." That is one way of admonishing you not to waste your energy. And real packing will drill it into you. Drilling that you may well be glad to get: for unless you are a very unusual chap you will be happy indeed to form a lifelong habit of conserving your energy and making every lick count for something.

Freshening Up. — After the day's hike, if possible, take a swim (make it short), a shower or a sponge bath. Use the towel briskly in rubbing dry and use witch hazel and arnica in the proportion of two of the former to one of the latter, in rubbing down afterward. To buy this liniment as cheaply as possible, take a big empty bottle to the druggist and ask him (don't write it out) for ten ounces of extract of hamamelis and five of arnica. If you ask for witch hazel he will charge you more — and it is the same thing. And if you write it out on paper for him he will charge you "prescription rates." I learned this when training for bicycle races. And how I do love the pungent odour of that same old liniment, for the memories it brings back! I can wish you no better luck than that you may acquire the same fondness for it; for the fellow who does is the fellow who really *lives*.

CHAPTER V

THE HIKER'S KIT

ONLY a few years ago, prior to the Spanish-American war, to be more definite, if one wanted a pack-sack, or boots, moccasins, blankets or clothing for use on a hunting or a fishing trip in the woods, one likely as not got them from Port Arthur or Duluth or Marquette. And one had a lumberman's outfit, nothing else. I sometimes think the sportsmen would be better off to-day, at least as to their duffle, were they still in a



The Scout's Hiking Kit, with Blanket-Roll Separate from the Pack-Sack to Show How it Should Be Rolled

large measure dependent upon the same source of supply. For lumbermen's duffle is made for service, whereas much that is sold to sportsmen to-day seems to me chiefly intended to be ornamental.

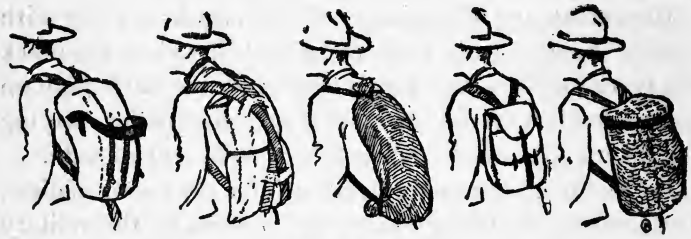
The Boy Scouts, of course, do not give their camping duffle anything like the wear and tear that the sportsman gives his. For the main part, their camping trips are comparatively tame, and the regular Scout uniform, common shoes, cheap blankets, and ordinary tents will do. There are two things, however, that the Scout should give special attention to — his pack-sack and his bed.

Haversack and Knapsack. — A haversack is a bag with a single shoulder strap, made to carry at the side; a knapsack has two shoulder straps and is carried on the back, high up on the shoulder blades. Neither is well adapted for carrying the hiker's kit, and in fact both are sadly out of date.

Both of these bags were developed for the use of soldiers. The Century Dictionary says that "originally the military knapsack was meant for carrying food, but it has gradually become appropriated to a totally different purpose, as the transportation of clothes and the like, and food is carried in the haversack." This being the fact, the name should be discarded, for "knapsack" means "food sack." However, in this country the knapsack was discarded some years ago, and our infantry soldier carries all his equipment, except his rifle, in one complete highly developed harness, with everything except ammunition, canteen, and first-aid pouch strapped in one compact roll, called the pack. And civilian hikers carry theirs in what is commonly called a pack-sack.

The best pack-sack made is one originated and patented by Poirier in Duluth, Minn., about twenty-five years ago.

The North is the real home of the pack-sack, which is the white woodsman's improvement on the tumpline of the Northern Indians. With the latter, the Indian carries anything, from a backload of flour to a miscellaneous bundle folded ingeniously in pack-cloth, tent or blankets, puckered at the ends, with the tumpline serving for drawstrings, and tied in the middle with the loose ends of the line. The tumpline, of course, is simply the carrier, the pack-cloth, tent or blankets serving in lieu of a sack.



SOME PACKS
From Left to Right, the Poirier, Prospector's, Grain-Bag, Rucksack, and Pack-Basket

The Tumpline Pack. — To make the bundle as above described, the Indian first lays his pack-cloth on the ground, and piles his duffle on the middle of it. Next he takes the leather tumpline (which is some fifteen feet long and about two inches wide for a foot in the middle where it goes across the wearer's head but otherwise little more than a heavy thong), and lays it with the headpiece at one end, and the two ends across the pack-cloth, one on each side the duffle and a foot or so from the edge. The ends of the cloth are now folded over the two end pieces of the tumpline and the

duffle rolled up in the cloth, making a roll with the head piece out at one side and a tip-end of the tumpline sticking out each end of the bundle. To complete the job the Indian pulls up the ends of the tumpline, so puckering the folded-in ends of the pack-cloth and securing sufficient line to knot each end to the carrying loop, carry to the middle of the pack, twist once around the other end of the line, pass around the middle of the pack and tie.

The manner of carrying this pack is shown in an accompanying illustration, which also shows how any bag or bundle, or several of them, can be carried on top, without being fastened there. The headpiece goes across the top of the packer's head, toward the forehead. And take my word for it, one needs to get well used to this mode of packing before one attempts anything approaching a heavy load.

This method of packing, clever though it is, imposes too much hardship upon white men, and it is only used by them on short canoe carries or portages. Many of the Indians, too, have largely given it up, using in its stead the white man's pack-sack. It has one excellent feature, however; in fording a swift stream or crossing on a log or in walking on treacherous ice, the packer has no fear of being drowned by his pack; for it is not strapped on him. The feature is retained in the Poirier pack above mentioned, by means of a headstrap, which is separate from the shoulder straps, and is shown hanging down in the illustration. Naturally it is intended that under such circumstances this pack is to be carried by the headstrap alone. For heavy packing over portages, however, both shoulder straps and headstrap are used, other duffle being piled up on top of the pack.

The Poirier Pack-Sack. — The Poirier pack is a simple flat bag, made in four sizes, the largest 30 x 30 inches, and the smallest 18 by 18 inches. The shoulder straps lead from a common centre near the top of the front of the sack, and attach to the two lower corners, A buckle in each strap (not shown in the illustration) provides for adjustment to fit the wearer. I fancy that when Poirier first brought out his pack the fit of the shoulder straps must have made a great hit. Formerly the soldier's knapsack

MORE PACKS
Left to Right, the Boy Scout's Pack, Modified Knapsack, Turkey, Pack-Harness Pack, and Tumpline Pack

had been the pattern after which pack-sacks were made, and of all the bunglesome contraptions, the old-fashioned army knapsack was about the worst. Whereas the shoulder straps of the Poirier pack-sack started from a common or "single-fire" centre, between the shoulder-blades, like a pair of suspenders, those of the army knapsack went straight across the shoulders, starting from opposite corners of the bag. In early times they crossed the wearer's breast. Thus with the Poirier type of pack, the straps hugged the wearer "where he could stand it," while the army type of knapsack hung its weight close to

the points of his shoulders. You will readily understand the difference if you place the point of your shoulder under the butt of a heavy pole and lift it, then shift the weight closer to your neck. Before going further, I want to say that the pack worn by our infantry soldiers to-day is a highly developed affair and beyond criticism. Also that I believe the Swiss chamois hunters were the first, in modern times at least, to use the single-point suspension in connection with a pack.

Another good feature of the Poirier pack (the patent has expired and it is manufactured by various concerns) is the cut of the flap, and the three long straps that hold it down. These straps enable the pack-sack tripper to make his pack-sack large or small, according to the contents; therefore a snug pack is always assured. With the large sizes — too large for a boy — the blanket, poncho and tent-cloth go inside, folded against the packer's back, to make the pack ride easy. With the boy's size it is carried in the conventional roll, over the shoulder, or strapped in a bundle on the top of the pack.

Boy Scouts living in Minnesota or the Upper Peninsula of Michigan, where these packs are common, cannot do better than use them. I would recommend them for every Scout if it were not that I have worked out an excellent substitute, costing only half as much, which I will describe further along in this chapter.

The Prospector's Pack. — The pack shown in the second position, which I call the prospector's pack, is one I have used for heavy packing, and like very much. I consider it superior to any pack made in the way it hugs the back, if well loaded and properly hung. But it is in some respects

inferior to the Poirier pack. It is a homemade affair, consisting of a simple flat bag of heavy brown canvas in dimensions 24 x 36 inches, with canvas loops or "keepers" to hold the straps, and two 5½-foot straps. I first had only the four canvas straploops on the back of the bag, but later made an improvement by putting two similar loops on the other side close to the bottom. By running the straps through these, they were secured against any possibility of slipping out of position, which formerly they had done, unless the corners of the bag were well filled, especially when taking the pack off or putting it on. I think a further improvement would be to rivet each strap to the bag on the bottom.

The blanket, rolled in the tent-cloth, five feet long, goes in this bag in the form of a letter U, the poncho or stretcher is folded and tucked down flat and smooth on the front side, or that which will be next the packer's back, and kit, grub etc., go in the middle of the blanket-roll U. Lastly, the upstanding ends of this are bent over together, one overlapping the other, and the top of the bag is folded down and secured by a strap passed vertically around the pack. I have used the same method of loading in connection with the Poirier pack-sack, and like it. It gives you a pack much easier to pack and unpack, that is more flat and rides better than if loaded with the blanket and the tent-cloth folded.

The Grain-Bag Pack. — The third pack illustrated is the easiest to procure and the quickest made that I know of. And it is much used by men in the Northwest as an emergency pack-sack, or to serve where a regulation pack-sack is not had. I have used such a pack repeatedly, when the question of how to carry a back-load seemed perplexing —

until I got hold of a grain-bag and a halter strap. The regular two-bushel cotton bag is what you want, not the clumsy "feed-bag" of burlap. Get a couple of walnuts, corn-cobs, or stones of similar size, and put one in each corner of the bag. Next, pile in your duffle, filling the bag half or two-thirds full. Tie the top of the bag upon itself, with a single knot. Now, tie your halter strap around the neck of the bag below this big knot, using also a single knot, tied in the centre of the strap. Last, tie each end of the strap around a corner of the bottom of the bag, behind the walnut or stone, using a single knot as before. To adjust the straps, take up or let out through the knots tied to the corners.

The Rucksack. — The fourth illustration shows the Swiss rucksack, which means literally back-sack. It is primarily a mountaineer's pack, and the shoulder straps start from a common centre, as in the Poirier pack-sack. There are several different models, the one most commonly used being a single bag in size about 16 x 20 inches, closing at the top with a drawstring, the puckered opening being covered with a flap that buckles down. The model shown (rather imperfectly) in the illustration, is 18 x 22 inches, but a much larger bag when opened to its full capacity, the bag having a number of gores which can be let out by loosening a strap. The pockets on the back are handy for carrying camera, maps, etc. It is not, however, as practical an everyday pack as the Poirier type, and it costs three times as much; perhaps because it is a "fancy" bag.

The Pack-Basket. — The last illustration in this row shows the Eastern pack-basket, which is much used by guides and sportsmen in the Adirondacks and Maine, and

to some extent in the Maritime provinces of Canada. It is mostly used for a grub-pack, on canoe trips, but has nothing to recommend it for use on the trail. And the Poirier type of pack-sack double discounts it at its own game — portaging.

The first picture in the second row showing different packs, illustrates my adaptation of the soldier's *haversack* (no longer used in the army and to be obtained for 75 cents from any dealer in condemned military supplies) as a pack-sack. This I will describe at length further along in this chapter.

Other Pack Bags. — Next is an Eastern modification of the antiquated knapsack. This bag is carried by a canvas yoke, which fits the wearer better than the straps of a knapsack. Adjustable straps extend from the shoulder yoke to the bottom corners of the bag. A better pack-sack, also essentially Eastern, is the one named for "Ness-muk," or George R. Sears, author of a little book entitled "Woodcraft" which for many years was the only reliable handbook on camping and woodcraft. The "Nessmuk" pack-sack (erroneously called a "pack," since a pack is a pack only when it is packed), looks somewhat like the pack-sack previously mentioned, except for having a single point of suspension. The boxed sides, however, taper in at the top, and the top is puckered under the flap with a drawstring. The original Nessmuk pack-sack, I believe, did not have the shoulder straps meeting at a common centre at the top of the bag.

The third illustration in this row shows the woodsman's "turkey," which is made with a grain-bag or a feed-bag and a short piece of rope. A small potato, a short section

of corn-cob, or something of the like, is put in one corner of the bag, and one end of the rope tied behind it. Then the contents of the bag are piled in, and the bag is tied at the top with the other end of the rope. It makes a fairly comfortable one-shoulder pack, and is a trick worth knowing. The neck of the bag goes over the shoulder, so there need be no fear of the rope.

The last pack, made with a tumpline, has already been described. That immediately preceding it represents a duffle-bag or a pack done up in a tent, poncho, or blankets, carried with a pack-harness. This harness consists of two straps which go around the bag or bundle horizontally, and the carrying straps, which preferably should start at the top from a common centre but in the Eastern manufactured article usually are attached, as illustrated, to the same sort of canvas yoke as is used on the pack mentioned above as a modification of the knapsack.

You now have a brief outline of the practical pack equipment used in the United States and Canada, with the exception of the pack I recommend for Boy Scouts, those of the soldiers, and a few mongrels that need not be discussed. I should like to describe the soldiers' pack as used in this country, it is so neat, practical, and interesting — I almost said unique. But I have not the space, and such a description would be of no practical value to the Scout, since the government does not allow any one but a soldier to have the new army pack. Besides, it contains a number of features a Scout would not want. So now for the details of my Scout's pack-sack.

The Haversack Pack-Sack. — I first described this pony pack-sack (as I then called it) in the June, 1911 number of

Recreation, of which I was then the editor. And as that year the Boy Scout movement was sweeping over the country, and there was no practical Boy Scout pack-sack, many Scout Masters followed my suggestion. I am glad to say I have had many testimonials as to the satisfaction the little rig has given. Among the Scouts of my own troop, No. 1 of Mamaroneck, N.Y., it is voted the best equipment we have.

To begin with, I wanted a small pack-sack, suitable for carrying camera and lunch on an ordinary day's hike, yet large enough, if necessary, to carry the necessaries for a trip of two or three days away from any point of grub supply. I bought an ordinary soldier's condemned haversack, with a single shoulder strap, the haversack being made to carry at the hip. I unhooked the strap from the two D rings at the upper corners of the bag, and thought to cut it in two and make shoulder straps of it. (This I have since done with another haversack, and is done by the Scouts in my troop). But I wanted to make sure to have a broad strap over the shoulders, where the weight would come, so used the old haversack strap for one shoulder strap, and got some leather and cut another one for the other shoulder. I got four iron D rings and four short pieces of leather strap, and secured a D ring to each lower corner of the front (back if you like, but I call it front because it is the side that goes forward) of the bag with rivets and stitching. The other two D rings I secured in the same fashion to the top of the bag, using, however, a 4 x 6-inch piece of sole leather as a reinforcement inside the bag and placing the rings in the centre instead of at the corners. I then

Front View of Scout's Pack

riveted and sewed my shoulder straps to these upper rings, and, using the brass hooks, four in all, from my haversack strap, adjusted my straps and hooked them to the lower D rings. I would have used a single ring at the top, attaching both straps to it, as on the Poirier type of pack-sack (see illustration) but did not have one and was in a hurry. Anyhow, I intended to put on a single ring later. This, however, I did not do until recently; and in the meantime, because of being not properly made in the first place, this bag, which I made simply for my own use, has been the cause of other bags also being made with the two-point suspension, instead of the proper single-point secured by using one large ring. While satisfactory enough for my own use, boys who borrowed this bag found that the straps were apt to slip off their shoulders if the bag were loaded lightly. To prevent this they crossed the straps at the top. And then when I would go to shoulder my pack I would find I couldn't get into it.

This bag, of course, is only large enough to carry cooking kit and grub, but no duffle. To get around this, I riveted on the five blanket straps, using one rivet to each, and reinforcing on the inside of the bag with a bit of strap. These straps are twenty inches long; be sure you do not make yours shorter. When the bag is used for a day's trip and no tenting is carried, they are rolled up, each in a neat little roll held by the buckle.

Tent-cloth and stretcher or tick will be described in the chapter on Tents and Tent Making. Your blanket should always be a double one, and of wool. Do not use a cheap, shoddy blanket; they are both uncomfortable and unhygienic, it being impossible to keep them dry.

The Blanket Roll. — To make up your blanket-roll, for strapping around the pack as shown in the illustration, first spread out your stretcher, or if using a combination tent (which you will find described in the chapter on Tents and Tent Making), spread that. Fold one end over so your cloth is five feet wide. Make a mark with a soft pencil and you will always know where to fold. If using stretcher and tarpaulin tent, now spread your tent on the stretcher, same size or smaller. Next, shake out your double blanket and fold it first the *long* way once, then fold this long strip on itself twice, or making three such folds in all, one on top of the other, in dimensions 3 x 5 feet. Lay this on the tent-cloth, and last of all spread on top your sweater and your pillow-bag, containing towel, handkerchiefs, clean socks, etc., which cannot go in the pack-sack. Now start on one of the long sides and roll, and roll tight. Do not include the stretcher or tent-cloth, whichever happens to be on the bottom. When your blanket is half rolled, pull the roll back to the edge of your outside canvas, and roll again, this time rolling in the canvas also. Make it tight; use your knees to help you. When you get within a foot of the edge of your canvas, stop and fold in half of it; then complete the roll, stopping when the folded edge of the canvas is almost underneath. Now bend the two ends up forming a U, with the folded edge of the canvas on the bottom or outside of the bend; see drawing. This will cause it to hold snug and neat. Strap your roll in place around the bag, and, if the bag is loaded, as it should be before the blanket-roll is strapped on, you are ready to hike.

How to Carry the Pack. — I have given reasons in an earlier chapter for carrying everything on the back.

There are two other cardinal points to know and be guided by — Carry your pack *low*, so the bulge of it fits the hollow of your back when you back up against a tree and lean against it, and let your knees *give* a little with each step, as the weight is placed upon them. This is the bent-knee walk mentioned in an earlier chapter.

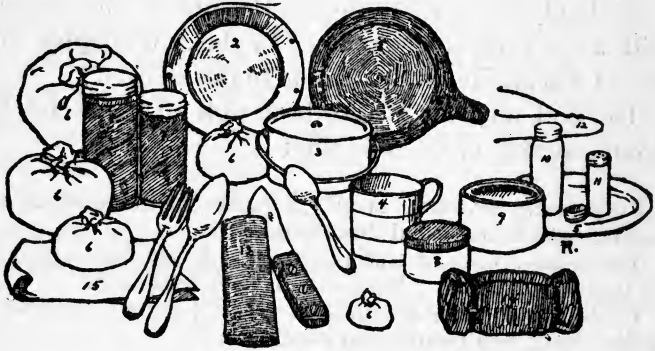
As to the contents of the pack-sack, for the present I shall simply give a suggestion, in the form of a list, followed with a few explanatory notes. In the next chapter, however, I will give further attention to this subject.

The best mess-kit I have been able to secure for Boy Scouts consists of the following:

Frying-pan, stamped steel, $7\frac{3}{4}$ inches in diameter at top; handle cut off and fitted described below.
Bread-pan, retinned stamped steel, $7\frac{1}{4}$ inches diameter at top, $5\frac{3}{4}$ inches at bottom, 3 inches deep; detachable bale.
Cooking pot, retinned stamped steel, $5\frac{1}{2}$ inches diameter, $3\frac{1}{2}$ inches deep; bail handle and cover.
Tin plate, $7\frac{3}{4}$ inches diameter .
Tin cup, 3 x 3 inches, straight sides, holds $\frac{3}{4}$ pint.
Cooking knife, $4\frac{3}{4}$-inch blade, butcher pattern; serves all purposes.
Table fork, teaspoon and tablespoon.

The Mess-Kit. — The frying-pan I bought for 10 cents. I cut the patent "cold" handle off with a hacksaw, and with a hammer, pliers and a vise as tools, bent the edges of the remaining $3\frac{1}{2}$-inch stub around to the under side, forming a half-round base in which, after drilling three holes, I riveted a $2\frac{1}{2}$-inch section of $\frac{3}{4}$-inch thin iron pipe. In this I push any convenient round stick, when commencing cooking operations, thus having a long cold handle, and I am not bothered with an awkward frying-pan handle in my

pack. Almost every troop of Boy Scouts includes at least one person who has a breast-drill and can drill the holes for these rivets. Not having rivets handy, I cut off some wire nails, and for washers used some from worn-out automobile spark plugs. The piece of pipe also came from the scrap-box, having formerly served as a conduit for ignition wires on one of my cars.



A Practical Mess-Kit for Scouts

1, Frying-Pan; 2, Bread-Pan; 3, Pot; 4, Cup; 5, Plate; 6, Provision Bags; 7, Provision Cans; 8, Butter Jar; 9, Lard Tin; 10, Milk Bottle; 11, Salt Shaker; 12, Bread Pan Bail; 13, Knife-sheath; 14, Ditty-Kit; 15, Dish-Towel.

The bread-pan is called by dealers in household supplies a pudding dish, and can be duplicated in light tin for 10 cents. It will pay any troop, however, to order their mess-kits all at one time, through one dealer, and get retinned stamped (and of course seamless) steel. The cost for bread pans should not be more than 15 cents.

The cooking-pot is one listed in catalogues as a sauce-pot, and is hard to obtain in this size. If a number are ordered at once, as above suggested, they should not cost more than 35 cents each. This and the bread-pan should be obtained

from a concern dealing in hotel and restaurant supplies; your local dealer can get them if you insist. Do not accept cheap kitchen tinware.

Cup, anywhere for 5 cents; same for plate.

Forks and spoons can be bought by the dozen, and will average 2½ cents each for a good quality. And a serviceable cooking (butcher) knife will cost 25 cents.

Thus for a dollar you can get together a mess-kit that is in every way superior to anything on the market. It will "nest" all in one little bag, or if you like you can carry it as follows: Put knife, fork, and spoons, each in a leather sheath, in the pockets at the sides of the pack-sack, and the plate in the pocket of the flap. Frying-pan in the frying-pan pocket that buttons (cut out the buttons) inside the bag; the bread-pan and the cooking-pot, the latter nested in the former and with a bag containing dishrag, soap, and dishtowel inside, down in the pack, bottom side in the hollow of the frying-pan in its bag and top side to fit in the hollow of the plate when the flap is buckled down. To make sure these nest as described, pack other things around and below them. And in order that the bottom of the frying-pan may not get too hard against your back, insulate it with your spare shirt, if on an extra-shirt hike, or your towel if not.

The Ditty-Kit

The other contents of the bag consist of a ditty-kit, a first-aid can, and the food containers. The first is made as shown in an accompanying illustration, size to suit individual notions, and preferably of some strong goods such as brown denim or khaki. The con-

tents are placed in the pockets, the flaps folded over, and the whole rolled up until closed by the flap, then secured with the straps. This is a rough and ready duplicate of the traveller's toilet roll, and contains toilet articles, needle and thread, waterproof match-safe (loaded), spool of adhesive plaster, extra first-aid supplies, and other things, such as you might carry in your pockets.

The First-Aid Can. — The first-aid can is a combination tin-and-cardboard mailing case $5\frac{1}{2}$ inches long by $2\frac{1}{4}$ inches in diameter, costing 15 cents if you get it at retail from your druggist, or perhaps five cents if procured in dozen lots from a supply house. Like the other cans mentioned here and in the next chapter, it may be substituted by a baking-powder can. Personally, I like the screw top and the fact that this type of can does not rattle or dent. It contains 1 roller bandage, a triangular bandage, 2 antiseptic compresses of sublimated gauze, assorted safety-pins, and a glass vial of tincture of iodine with rubber stopper. If hiking in a snake country it is well, though not so necessary as is generally believed outside of snake country, to carry in addition a hypodermic syringe and the antidotes that go with it, a solution of potassium permanganate and another of strychnine. For directions for using these, consult your Scout Master. In passing, I may say that among the natives of real snake country, carrying a hypodermic is practised to about the same degree that the carrying of a compass is practised by the bushmen of the Canadian wilderness, which is to say that nobody but a tenderfoot or a stranger carries one.

Bread-Pan with Bail Attached

The tin cup goes in the pack on top, where you can get it easily. Same applies to the pocket camera, if you have one. The $3\frac{1}{4}$ x $4\frac{1}{4}$ size I find the most satisfactory, after trying many different ones. A good place to carry a map is in the pocket of the flap of the bag, along with the plate. There are, of course, a few extras which are desirable but not necessary. They all add to the load, and I think it best that they be distributed around among the party.

What It Weighs. — These things I have mentioned, together with the grub (see next chapter), Scout axe and knife (and canteen, according to circumstances) on your belt, complete your load. And it is a real load, as you will soon find. In fact, it may be that you haven't the necessary physique to tote it. There are plenty of Scouts who haven't. So in the chapter on Special Equipment I will tell how to make a trek cart that will carry the camping equipment of the average patrol, and which at least will be welcome aid to the smaller fellows.

The weight of the pack is as follows:

Pack-sack	$2\frac{1}{4}$ lbs.
Tent-cloth	$3\frac{1}{4}$ "
Stretcher	$1\frac{1}{2}$ "
Blanket	5 "
Pillow-bag (including towel, handkerchiefs, and socks).	$\frac{3}{4}$ "
Mess-kit	$2\frac{1}{2}$ "
Ditty-kit	1 "
First-aid can	$\frac{1}{4}$ "
Grub-containers	1 "
Grub (liberal, for 2 days)	4 "
Miscellaneous extras (including sweater)	$1\frac{1}{2}$ "
Total	23 lbs.

Heft it, put it on your back and walk upstairs with it, and if you have never before made a pack-sack trip, make up your mind before you start that it is hard work.

Hard work — but think of the *freedom* of going wherever you want to, of following no road or path, but striking out and making a path of your own, and setting up your house for the night wherever your fancy dictates. Isn't that worth a little honest sweat? And what of a few sore muscles? Lastly, think of the satisfaction of having your own neat little outfit, with which you can live and travel independently of everything except an occasional source of grub supply.

CHAPTER VI

GRUB

FOR the most part, hikes made by Boy Scouts do not compel the carrying of desiccated foods and the abstinence from fresh butter and yeast bread that falls to the lot of sportsmen making long trips in the wilderness. On the average overnight hike, there is no reason for going without bread and butter. And, indeed, they generally are to be met with along the way on longer hikes, for the long hike of the Scout is pretty apt to pass a good many farmhouses. And if my experience serves me right, the bread and butter one gets on the farm are worth going out of one's way for. Also eggs and milk — yes, and I'll include ice-cream. I've never tasted better ice-cream than I used to get from a certain Iowa farmer's wife in return for turning the freezer. You can get fresh vegetables and fruit in season; potatoes, onions, and the like at any time. And the pies!

The Handy Grub Supply. — There is no reason in the world why a Scout should travel on short rations, even if he is so loaded down with duffle he can't carry but a little grub. But here's a pointer: The bigger your party the less chance you have with the farmer's wife. Better split up and forage by twos. And remember that there is nobody so independent as the American (or Canadian) farmer, and that good nature will get you more favours

than anything else will. I have many a time been denied opportunity to purchase food — perhaps on account of my looks — by farmer women who not only relented but provided bountifully when we got acquainted. Having been raised a farm boy I perhaps have some advantage at this sort of diplomacy; but "what man has done Scout can do" certainly applies here, because a Boy Scout only has to look hungry, being pretty generally known to be honest. And it's easy to look hungry, isn't it?

All things considered, I hesitate to suggest a grub list for the overnight or two-days' hike. The sensible thing is first of all to consult the home larder. Next, your appetite. Generally I take a survey of the ice-box and the pantry, and pick out what prepared food I want. Then I add what is necessary in the way of such staples as flour, cornmeal, tea (the woodsman's drink always), bacon, eggs, crisco (an excellent substitute for lard), baking powder, etc. Finally, after taking stock of what I have accumulated, I make out a list of the things that are lacking, and get them. It is seldom I have to make any purchases.

The Wilderness Near Home. — To get a real taste of the life of the woodsman, or bushman as he is called in the British colonies, you will of course want to go for several days away from "civilization." You can do this, perhaps, without going far. I live in a town of 5,000 inhabitants, twenty miles from the heart of New York City, and I can find plenty of woods seclusion between here and the great city, where but for the sound of an occasional automobile siren or a train whistle I might easily imagine myself a thousand miles away. The wood-thrush that so many rave about having heard in far places, sings his beautiful

bell-like melody in the trees fifty yards from my window, and the white-throated sparrow, or Canada bird, that is so much a part of the Northern wilderness, stops here on his migrations and stirs me with his high-pitched cascade of song. In fact, the only thing I lack to bring a most satisfying imitation of the wilderness within a half hour's hike of where I am writing is the fir trees. And without them — well, I'm spoiled. But you can do it and perhaps not miss the fir trees at all, and again you may have all you want of them.

For a little trip into some such quiet corner, where you may "hide out" and sense something of the charm that lays hold of the wilderness traveller and enslaves him for life, the following list of pack-sack tripper's sure-enough staples is suggested:

FOR INDIVIDUAL SCOUT, THREE DAYS, SEVEN MEALS

(Any time of year, any location, no allowance for fish, game, wild fruits or nuts.)

Flour	1¾	lbs.
Cornmeal (yellow)	1¼	"
Rice	6	oz.
Bacon (lean)	1	lb.
Lard (or crisco)	4	oz.
Sugar	¾	lb.
Coffee (ground)	4	oz.
Tea	½	oz.
Baking powder	2	oz.
Evaporated cream	7	oz. (fluid)
Salt	4	oz.

That appears like pretty "dry fodder," doesn't it? But remember, the lone timber-cruiser or prospector hiking far beyond the edge of things is compelled to go light, and if

you want to emulate him, you must not turn up your nose at his grub list. Especially when it is remembered that you haven't the muscle nor the room in your pack for carrying what he *could* carry. And please note that you have almost six pounds of grub.

Now suppose we see what sort of a three days' bill of fare we can get out of this. To begin with, you will eat your breakfast before leaving home, and will get your supper at home the day you return. That means three dinners, two suppers and two breakfasts to get.

FIRST DAY

Dinner	*Supper*
Hoe Cake	Boiled rice and milk, with sugar
Fried bacon	"Dough gods"
Hot biscuits	Tea
Coffee	

SECOND DAY

Breakfast	*Dinner*
Fried rice	Corn dodgers
Flapjacks, with syrup	Broiled bacon
Coffee	Hot biscuits
	Coffee

Supper
Cornmeal mush and milk, with sugar
Corn batter cakes, with syrup
Tea

THIRD DAY

Breakfast	*Dinner*
Fried mush, with sugar	Boiled rice
Broiled bacon	Fried bacon
Hot biscuits	Biscuit loaf
Coffee	Coffee

Not so bad, is it, for results from such an unpromising little grub list? Sure, you probably will have some grub left

over after some of your meals. But I have no way of knowing what your eating capacity is, or how hard a day's work you will do. I have simply struck a safe average. Many a trailer goes longer with less variety, although it must be admitted the practical man on the trail generally eats as well as he can, and nowadays is getting into the way of carrying desiccated and dried foods. But let us see how our menu is prepared.

Before you go afield, take your 3 x 3-inch tin cup, which holds ¾ pint, and with a file scratch on it inside and outside marks which will enable you to use it as a measure. A mark 1 inch from the bottom will be the ¼-pint mark, a mark 2 inches from the bottom the ½-pint mark. Make these marks carefully and thoroughly, so you can always be guided by them. Now for the recipes:

Hot Biscuits. — Make sure to have a steady, hot fire that will have burned down to coals when your biscuits are ready to bake. Take ⅔ cupful (half pint) of flour, 1 level teaspoonful baking-powder, ¼ teaspoonful salt, 1 teaspoonful cold crisco (or lard), and with your tablespoon mix well in the bread pan. Add water to which sufficient evaporated cream has been added to make a half milk, half water solution, and mix as rapidly as possible, until you have a fairly stiff dough. Tilt the pan and expose the bottom, on which dust some flour, flop dough back on this and dust flour on top. Turn your plate upside down, dust well with flour and rub some on your hands. Turn the loaf out on this improvised bread-board and quickly but not too roughly flatten it with your hands to ¾-inch thickness. "Flour" the top of the ½-pound baking-powder tin you carry your ground coffee in, and with it stamp out your

biscuits. Lastly, after another dusting with flour, gently but firmly take them one at a time, and — put them in the hot ashes to bake. No pan, no reflector or oven. Just rake away the ashes a bit and put your biscuits down in a neat little row, and then rake the hot ashes around them — not on top of them. And when they have raised get your coffee pail or preferably your frying-pan going *over* them, making your coffee or your hoe cake and incidentally reflecting the heat down on top of them. No, they won't be dirty, at least not enough to hurt. You can blow the ashes off them when you fish them out. Try them with a sliver of wood; when no dough adheres, spear them with your fork. Hot? Not at *that* end of the fire by the time they are done. A fire follows its fuel, and if you are a good camper, the last fuel you put on was at the other end, where you are going to heat your dishwater.

Baking with Bread-Pan and Frying-Pan

Hoe Cake. — Take ½ pint of cornmeal (if you have a pretty good appetite), and in your bread-pan mix in with it ⅓ teaspoonful of salt and ½ tablespoonful of melted crisco (or lard). Mix well, pressing the grease into the meal with your tablespoon. Add warm water sufficient to make a thick batter, stirring well. Have the frying-pan clean, grease with crisco and a bit of rag, and heat pan. Spread a *thin* batter in the pan, and cook over a steady, moderately hot fire that has burned down to coals. Turn the cake as you would a flapjack, when the bubbles in it have

burst, meantime shaking the pan occasionally to keep the cake from sticking.

Fried Bacon. — Just *fry* it; if you don't know how, your qualifications as a Scout should worry you.

Coffee. — For each cupful you expect to drink, put into your cooking pot a *short* (about three-quarters full) cup of water. Put on the lid and bring water to a boil. Take it off and put in a tablespoonful of ground coffee for each cup of water. Put back on the fire where it will get sufficient heat to bring it to a boil in half a minute. As soon as it boils, remove and "settle" it by pouring in enough cold water to make up for what was left out in the first place — half a cup if you are making two cupfuls. And your Mocha and Java being worth the name, you should have good coffee.

Boiled Rice. — Take a little more than half of your rice and wash it in cold water, using your bread-pan. Have your cooking-pot three quarters full of salted water, boiling hard, and dump in your rice. Let boil for about twenty minutes, but not too hard (half an hour if boiling gently), and stir occasionally. Strain off the water and set the pot to one side or hang it up high over the fire, with the lid off. By the time you are ready to eat, the rice will have swelled considerably, and dried nicely; you probably will have twice as much as you can eat. This being the case, do not eat out of the pot, but serve what you want on your plate; the balance is to be fried in the morning.

"Dough Gods." — Take $\frac{2}{3}$ cupful of flour, 1 small teaspoonful of baking-powder, $\frac{1}{4}$ teaspoonful of salt, and 1 slice of fat bacon, minced fine as possible. Mix thoroughly in your bread-pan and add water slowly, stirring and

working with your cooking-spoon till you have a fairly stiff dough. Flour the loaf top and bottom, flour your hands and pat the dough out into a couple of big cakes about half an inch thick. Bake in the ashes, same as the biscuits. Or, as your frying-pan is not working, warm and grease it, and put in one of your cakes. Place over a steady slow fire (hot coals, not blazes), and shake occasionally so the cake will not stick to the pan. When it is brown on the bottom, slide it out on your plate, previously greased, and stand it up on its edge beside the fire, so the heat will bake it on top. Now attend to the other one the same way, except you can use the frying-pan to stand it up at the side of the fire. Turn your "dough gods" around as it becomes necessary so they will bake evenly on both sides. When they get enough "backbone," you can take them out of the pans and prop them so they lean with their tops toward the fire. Have them close, and provide a good steady bed of coals, not too hot.

This "bread" is somewhat similar to biscuit loaf. It is the old way of baking with bacon instead of rendered grease or lard, used by men who carried nothing they could do without, and whose only food staples were flour, bacon, baking-powder and salt.

Fried Rice. — Made with the boiled rice left over from the last meal. Simply cut into cakes and fry.

Tea. — Boil a cupful of water (in your cup if necessary), and when boiling put in ½ teaspoonful of tea. Take off the fire and let stand for five minutes to steep.

Flapjacks. — Take ⅔ cupful of flour, 1 small teaspoonful (not quite level full) of baking powder, ¼ teaspoonful of salt and mix well in the bread-pan, adding cold water and

stirring well until you have an even batter. Grease frying-pan, heat it, and cover the bottom with batter about an eighth of an inch deep. Bake over hot fire, shaking the pan occasionally to keep the "jack" from sticking. When the air bubbles have about all burst, "flip" your cake upside down, and cook the other side. Place on plate close to fire and cook the rest of your batter. Be ready to eat as soon as the last one is done; for "the older they are the tougher they be."

Syrup. — Put 6 teaspoonfuls of sugar in your cup, add enough boiling water (from that for the coffee) to just cover it, set in the coals and stir till the sugar is dissolved, then let simmer (boil gently) for five minutes. Pour out in your plate to cool. If you have too much for your flapjacks, leave some in the cup to sweeten the coffee.

Corn Dodgers. — Take $\frac{2}{3}$ cupful of cornmeal, $\frac{1}{4}$ teaspoonful of salt, and $\frac{1}{3}$ cupful of warm (not too hot) water. Mix into a stiff dough, and then with your hands roll this into the dodgers, which are about the size of pork sausages. Get the frying-pan *hot*, grease it, and put in your dodgers. Fry them brown, then turn them out into the bread-pan previously greased and warmed. Set this among the coals and invert the frying-pan over it. Rake coals around and over the bottom of the frying-pan. The dodgers should be well baked in about fifteen minutes, depending upon your fire.

Broiled Bacon. — Use a long-handled green-stick fork, turn the slices frequently, and remove when they begin to brown.

Cornmeal Mush. — Mix in your bread-pan $\frac{3}{4}$ cupful of meal with 1 teaspoonful of salt. Have $3\frac{1}{3}$ cupfuls of water

in your cooking-pot and bring it to a hard boil. Add *cold* water to the meal to make a soft batter, mixing well. Now with your tablespoon dip the batter into the boiling water, a little at a time, so as not to stop it boiling. Stir well, to prevent lumps forming, and after about ten minutes put the cover on and hang the pot up where it will cook slowly with no danger of scorching. Stir once in a while, and if necessary thin with boiling water. Cooking should be complete in an hour. Pour what you don't eat into the frying-pan, previously greased, to stand overnight and "set" for frying.

Cross-Section View of Bean-Hole and Dutch Oven, as Described in Chapter X

Corn Batter Cakes.—Take $\frac{2}{3}$ cupful of cornmeal, $\frac{1}{3}$ cupful of flour, 1 small teaspoonful of baking-powder, 1 teaspoonful of sugar, 1 small teaspoonful of salt, mix, add cold water gradually and stir to a thick batter. Fry like flapjacks.

Fried Mush. — Cut the cold mush into narrow slices, and fry over a hot fire, using plenty of crisco.

Biscuit Loaf. — This is prepared same as biscuits, except the loaf is not flattened or rolled in any way. Be sure to rub the crisco or lard "shortening" thoroughly into the flour, leaving no lumps. Bake in one loaf, using the frying-pan to start with, and leaning the loaf against a clean, flat stone when it is baked enough to stand on end. Follow baking instructions given for dough gods.

Now you have a solid foundation on which to build a good reputation for camp cooking. By adding to the above

list such other staples as dried beans, split peas, barley, and dried fruit, and using not only the recipes given, but as many more as you can find, you can have quite a surprisingly elaborate menu. And this all with staple grub.

Why Carry Water? — You will of course prefer to add a little more weight and bulk to your pack and spend less time cooking. And you *can* have butter. You will want to carry eggs, and canned goods, butter, a fresh steak, fresh fruit and even potatoes on occasion. Go ahead; you're doing the eating — and the packing. I merely want to casually remark that the equivalent in fresh and canned grub of your six pounds of the dry variety will weigh — oh, say ten or twelve pounds at least. And the excess weight will be almost all water and refuse. For example, just think of the water in a couple of cans of corn — more than half by actual weight. And a can of corn weighs $2\frac{1}{4}$ lbs. That means $1\frac{1}{8}$ lbs. of water to every can. Fresh beef, eggs, potatoes, canned beans, contain more than one half water, and fresh fruit, canned soups and fruit still more. Do you want to lug a pail of water all the way from home, or can you get along with the water you can obtain at your camp-site? I think you will do best to go pretty "dry"; flour, cornmeal, rice, and bacon contain less than half as much water. And there's that 19-pound pack besides the grub, you know.

As a Scout, you of course know how to broil or fry meat, boil or fry eggs, boil, bake, or fry potatoes. You now have a standard list of staples and recipes as a guide, and I shall discuss cooking — beans, sure; they take so much time to cook — in several subsequent chapters. I therefore shall conclude this one by telling you how to pack your grub.

Your Food Containers. — First make or get some little provision bags, assorted sizes, say two large, three medium, and two small, of "balloon silk" (No. 1 Egyptian sailcloth, or "spinnaker duck"), with paraffin ironed into it, the largest to hold a quart of flour, and leave room for tying securely, the smallest to hold a couple of ounces of baking-powder. (If you use self-raising flour you will save yourself the bother of fussing with baking-powder and salt.) Cornmeal, sugar, bacon, rice, beans, split peas, dried fruit, tea, etc., go in these bags. Next, three or four of the screw-top mailing cases described for carrying the first-aid kit (see preceding chapter), assorted sizes, or some baking-powder tins with tight-fitting lids. These are for ground coffee and such other provisions as require to be "corked up," such as desiccated eggs, desiccated potatoes or the like, if you have them, raisins, etc. Along with these I sometimes carry "pemmican," which I make by chopping up chipped beef. If convenient, for your lard get a small can of the friction-top (pry-up lid) kind. I use one 2 x 2 inches that formerly contained automobile tire "gum." Also (from the druggist, 5 cents), a 2-oz screw-top ointment jar for butter, and a 4-oz., screw-top glass (called a "tall round jar") for evaporated milk or cream. Lastly, a wooden salt shaker and a piece of cheesecloth the size of a table napkin, edges hemmed, to wrap up bread or biscuits in. The salt shaker is "muzzled" by unscrewing the top, covering the holes with a wad cut from a bit of tent-cloth, and screwing it on again. Finally, mark each container so you will know it at a glance.

As "a workman is known by his tools," so a good hiker is known by his outfit. Have everything right, at least for

your own comfort and satisfaction. And to top off with, get all the skill you can in handling a cooking fire. For suggestions, see the following chapters. Learn that a good cook is known by his fire, and like A. B. Frost's dog Carlo, you will be hard to beat.

Camping with a Phillips Combination Tent-bed

CHAPTER VII

TENTS AND TENT MAKING

BY NO means do you need a conventional closed tent for camping out on hikes. If you camp in thick woods where fir trees are plenty, a simple tarpaulin of waterproofed sheeting or light sailcloth, 7 x 9 feet in dimensions, will serve as a waterproof roof, pitched as a lean-to, or as a wedge or A-tent, big enough for two or three Scouts. And if desired you can thatch the sides of your lean-to or the rear of your wedge tent with fir browse. With your choice of these two shelters your comfort is comparatively secure. You have but to use good judgment in pitching your camp — and sometimes a powerful mosquito and fly "dope." Your bed you will also make of browse.

But fir trees are far from abundant these days, more's the pity. And there are conditions and times — insect times, for example — when a closed tent is desirable even for an overnight camp. Hay or ferns are not good substitutes for fir browse unless dry, and they never are dry if cut the same day.

Scouting For Shelter. — First of all, you will of course take stock of the local conditions affecting your hiking. It may be, if you are not in the "fir tree belt," your patrol or troop can rig up a shanty or a cabin or get the use of an abandoned lumber camp (beware of vermin; use the stable or cook house in preference to the bunkhouse) or some isolated hay barn for sleeping in on overnight hikes. And you may be able to use an abundance of thoroughly "cured" hay for your beds. I've slept in a hay barn, shed or stack more than once in preference to making camp. But a point I must admit is, I have never struck a match in any such shelter; it would not be safe, and it would not be fair to the owner of the building and the hay. Camping without a camp-fire being almost as unsatisfactory as going "swimming" in a puddle, and there being so much satisfaction in having your shelter and your bed along with you, wherever you go, you will be almost certain to be interested in this chapter.

First of all, I want to urge you to be slow to adopt the tenting ideas of other campers. You can easily make a whole series of unfortunate mistakes, for the reason that so many campers get into the way of showing off by making fancied improvements. Tent making offers so much opportunity for "expressing" individual ideas that the beginner is easily bewildered by the confusion of tents. And in the end, if you go far enough along the trail, you will agree that there is only one way to do a thing right. Furthermore, you will have learned that a substitute, once you have it, is generally used. Let me give you an example:

The Substitute Tent. — Some years ago I was going to make a light 9 x 9 tent, and decided upon the pyramid or

miner's type. The tent was wanted for making overnight canoe trips on the Hudson River, which near New York City is a much travelled highway. Our camps were made under the Palisades, on the New Jersey shore, on a narrow beach where no seclusion from other campers could be had, and a closed tent was required. It was also necessary to carry the tent pole, the Inter-State Park regulations forbidding cutting poles. I selected the pyramid form because it could be put up by one man (my camp-mates were my wife and little girl) in less than five minutes, with but four tent pegs and one jointed pole, and on account of its shape, which promised me indifference to wind and rain. A very good friend, the most practical sportsman, in many respects, I have ever known, told me how he had elaborated the miner's tent by adding an open doorway and an awning and using two jointed poles (*inside* the tent, not outside as in the trail tent used in the West) instead of one, to support it, and of course two poles for the awning. It was, in short, a combination of the Yalden octagonal canoe tent and the pyramid tent. And so, instead of a pyramid tent, with my wife's assistance I made a tent like this one "invented" by my friend.

Since the first time I set it up, I have never liked the features of this tent — the Yalden door and awning — that do not belong to the original miner's pattern. I long ago discarded the awning poles and cut one of the two jointed tent poles down to serve as a single jointed pole, as in the usual miner's tent, thereby eliminating not only one pole, but part of another besides. The awning — it is a courtesy to call it such — if spread, pulls the tent out of shape (we were very fortunate in cutting and fitting and

our tent when pitched was found to "set" equally as well as did that of my friend) and flaps and shakes in the wind in a very annoying fashion. I now almost invariably roll it up above the doorway, except if rain is expected, when I peg it down close to the ground, leaving just enough room to slip in and out of the tent under it.

I have been using this tent in this fashion for five years, and I dare say I shall continue to until I wear it out — unless some day I get desperate and cut the awning down and make a drop curtain of it. The point I want to make is the "fancy" tents are not apt to give satisfaction. You want simplicity, and have no more use for a complicated tent than for an "improved" axe.

Some Tent History. — Again, it is possible to be fooled by some fancied "new idea." A certain "new" tent made its appearance in the tent catalogues three or four years ago, and is listed in one of them as a recent invention. It is, however, nothing more than a copy of a tent Nessmuk, in his book "Woodcraft," published in 1888, tells of making, and of which he says, "It was a partial success," and furthermore, that it was made "on the same principle" as "the old Down East 'coal cabin,' which embodied the principle of the Indian camp." This supposedly modern tent, instead of being an improvement on the designs of ten and twenty years ago, you see is in reality one of the many *discarded* by the man who, "after more than fifty years devoted to woodcraft," gave the campers of America their first good manual — to-day a classic — in which he told them that for a summer camp for going light — he never went any other way — he had "finally come to prefer the simple lean-to or shed roof," which was

"only a sheet of strong cotton cloth 9 x 7 feet," waterproofed with lime and alum.

Nessmuk told the campers no more about tents than what other skillful woodsmen knew as well as he did. The 7 x 9 tarpaulin was the best *roof* for a woodsman travelling as Nessmuk did. And it still is.

But the average camper is by no means a woodsman. Nor is the Boy Scout. The idea of sleeping out "in" a tent that is nothing but a roof pitched shed-roof fashion, is not attractive to many. They want to be housed in, and the mysteries of the night shut out. Candidly, I myself like to be well housed, under certain circumstances, such as when unavoidably camping where mosquitos or black flies are bad, or when the rain is coming down in sheets on the exposed knoll where I have camped to get away from them. If camping in the Southwest, in the country of the much touted but none the less to be avoided hydrophobia skunk and the sidewinder rattlesnake, I surely would shut myself in at night. There are many things to consider, in recommending a tent for use in all parts of the country, by all kinds of people.

Making a Choice. — Out of all the different designs of tents, so many of which are attractive to you, how are you to know which is best for you? Perhaps you have been trying to work it out with paper patterns, as suggested by Mr. H. J. Holden, is his article "Tent Making Made Easy," in your manual, supposing you are a member of the Boy Scouts of America. If so, I want to say first that it is an excellent plan, and secondly that in my judgment he obviously had in mind tents for general use,

instead of exclusively for hiking. Lastly, the best all-around tent that can be made with a rectangle of cloth was left out entirely. Nevertheless, I am sure the article has been of much value to the Scouts, not so much for the detailed instructions given as for the suggestions conveyed, as to how a simple rectangle of sheeting can be made into a number of different tents.

The Best Hikers' Tents. — For my own use on hikes I have two different tents, both of which I made myself. Neither one is an original design of mine. I simply followed well-known tent-making principles and made them to suit myself. Both are, I think, especially well adapted for the use of Boy Scouts. One is a $7\frac{1}{2}$ x 12 tarpaulin of No. 1 Egyptian sailcloth ("balloon silk," or "spinnaker duck," inexpensive and easily obtained), fitted with grommets for pitching in any of three or four different ways, and most often pitched in what one of my Scouts called "pyramiddle" style, explaining that it was "like half a pyramid tent split in the middle." This is my "rain and mosquito" tent, and while primarily a one-man tent for use with a stretcher bed of generous proportions, it will comfortably accommodate two sleeping on ticks or browse. The proportions are different from any I have seen, and I think better. The other is a combination of stretcher-tick and tent, with a $7\frac{1}{2}$ x $8\frac{1}{2}$ roof, can be pitched in a number of different ways, and although different from any other tent is the result of evolution, not invention. As I am responsible for the features that distinguish it, I am glad to say there is nothing "fancy" about it. Neither of these tents is manufactured, so you will have to turn tent-maker to get one. But that should not bother a Scout. And in the end, there's a lot

of satisfaction in having camping equipment you yourself have made.

The Tarpaulin Tent. — To make the $7\frac{1}{2}$ x 12 tarpaulin tent, get either four yards of heavy unbleached cotton sheeting 90 inches wide, or 12 yards of 30-inch No. 1 Egyptian sailcloth ("balloon silk"). If the former, hem all around with a $\frac{3}{4}$-inch hem. If the latter, cut into three 12-foot pieces, sew these together with a *lap seam*, and hem

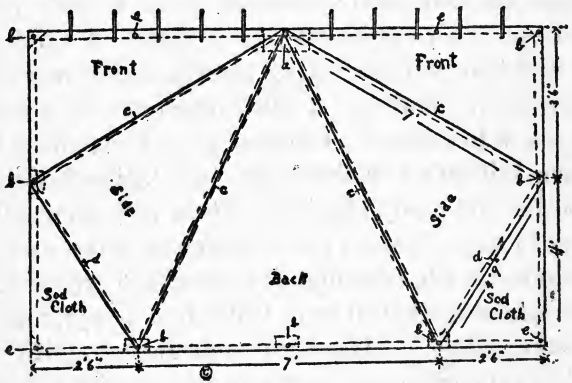


Fig. 1. — Plan of the Tarpaulin Tent

all around. Always hem on the same side. If you cannot operate a sewing-machine, you doubtless will have a better tent than otherwise; for whoever does the work for you will sew a straighter seam than you could anyhow. It takes practice, and your tent is done before you can acquire skill. If, however, you are going to do the work yourself, sew your stretcher-tick (see sketches) first, for practice. Make it of 4 yards of yard-wide heavy unbleached sheeting.

To strengthen your tent and as a guarantee that it will set well and will not pull out of shape, you should now rein-

force it by sewing ½-inch tape with a double row of stitching, along the four lines *c* Fig. 1, running from the point of the grommet hole which will be the peak, *a*, to those which will be the four corners of the tent when it is pitched as in Fig. 2. These with the outside hems — and the lap seams if made of balloon silk — will also give it strength to withstand pitching as a shed or as a wedge tent. To get them on properly, you will need to spread your tent on the floor, inside up, mark the lines off with a pencil, a chalk-line and a yard-stick before attempting to sew with the machine. Next, mark the places for the grommets, *a* and *b*, Fig. 1, and reinforce these on the inside with small squares of cotton, say 3 x 3 inches. That at *a* should be 4 x 6 inches. Be sure that *a* is placed on the proper edge so your outside lap seams will overlap downward from it, so they will shed rain.

The "Sickening Details." — Now get a dozen ½-inch galvanized grommet rings from some awning maker; or, if necessary, get a hardware dealer to procure some for you. Ordinary iron rings would rust and rot your tent. To sew these in, first cut a small cross in the hem of your tent where the pencil mark is, insert the ring between the goods, and bind with No. 25 linen thread waxed with a bit of shoemaker's wax. Work it all around, buttonhole fashion, sewing with a double thread. Do not insert grommets at the places marked *d*, as that would result in a couple of holes which would spoil your tent-cloth for pitching in more than one way. Instead, sew a 2-inch loop of double tape at these places. You will seldom use them. Sew grommets at the places marked *e*.

Get five yards of braided (not cable laid) window-sash cord, and cut off 7 pieces 10 inches long. Double each of

these and tie with a single knot, forming a loop. Push these loops through the grommet rings marked *b*, from the inside; you will note the knot is too large to pull through the hole, and the stiffness of the cord keeps the loop open so there is no danger of it coming out of the hole unless purposely pulled out. You now have your peg-loops. To complete your tent, except water-proofing, take the rest of your sash-cord and make your tent-rope, as follows: Push one end of the cord through the grommet *a* from the outside and tie a bowline knot inside, having a 3-inch loop. Take a piece of tough-grained hardwood such as elm — I have used the remnants from making tool handles — and shape to $\frac{3}{8}$ by $\frac{1}{2}$ by 2-inch dimensions, and in it on the $\frac{1}{2}$-inch side bore two $\frac{1}{8}$-inch holes, each $\frac{3}{8}$ inch from an end of the wood, making them 1 inch apart. This is your tent-rope slide.

The "Tarp" Tent in Use.—Now, except for water-proofing, and possibly dyeing, the former of which I shall discuss

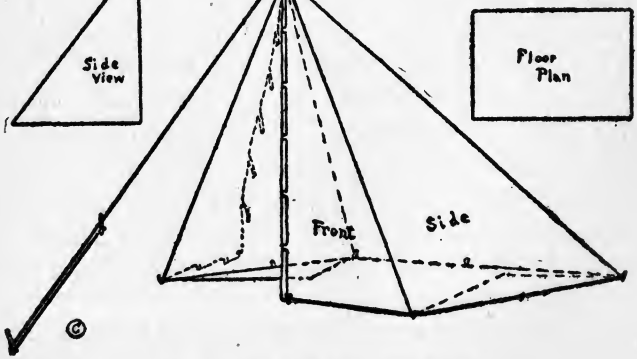


Fig. 2. — Plan of Tarpaulin Tent Erected

at the end of this chapter, your tent is ready to set up. I have shown in Fig. 2 how to pitch it in the semi-pyramid form, which provides a tent which may be closed to keep out rain or insects, or opened to receive the heat of the camp-fire. This latter feature is very desirable, not only to secure comfort on cold nights, but as a means to drying out in wet weather. The broad, sloping back wall of the tent reflects the heat of the fire upon you and your bed; not so well as does the roof of the lean-to, but quite satisfactorily. When closed up, the tent is very snug, and because of its steep tapering sides it behaves well in a hard blow and sheds rain easily. When set up, the two triangles marked "sod cloth" in Fig. 1 are turned in. It is not necessary to use a pole if a tree is convenient; simply throw the tent-rope over a limb and make fast. If a tree cannot be used and it is desired to have the camp-fire close in front, to get the full benefit of the heat, use two tent-ropes, carrying each to one side of the fire. No guy ropes are used, it is only necessary to drive six tent-pegs, and if you have your pole and your pegs the tent can be put up in two minutes — if the ground isn't too rocky. The floor length of 7 feet is necessary, because of the pitch of the roof, to accommodate a stretcher of proper proportions.

To Keep out Mosquitoes. — My tent is made of balloon silk, so called, cost $2.65 (for the goods), and weighs 3¼ pounds. It is made positively mosquito and gnat proof only by stretching inside it a smaller tent of cheesecloth, suspended from the same point and tied down all around with tapes to my stretcher. This inner cheesecloth tent is troublesome to make, but it is worth a dozen times the bother. It is a replica of the tent itself, except for being

a foot narrower and having a foot more height. It is sewed shut in front and must be entered at the bottom. You have to get inside it before making it fast anywhere. It works well with a stretcher, but easiest without, when you can weight it with four poles, taken inside it with you. Hem the bottom with cotton, and reinforce it with tape on the lines of draft.

As for camping in a place that might produce such sanguinary visitors as hydrophobia skunks, etc., I would recommend a sure-enough *closed* tent, of any good type, having a ground cloth sewed in and a pucker-string door and a good, tall doorsill. Such a tent would require a couple of windows, well up in the peak and screened with strong close-woven netting.

Other Shelters with the "Tarp." — This tent-cloth, being a simple flat sheet, can of course be pitched in a number of different ways, forming an open camp. The best of these is shown on the right in Fig. 3. This is a shed tent large enough for two, providing 5 x 7 floor space, the roof being 7 x 7½ and the front 5½ feet high. The side walls

Fig. 3. — Other Ways to Pitch the "Tarp"

are complete except for a 1½-foot triangle. Note that a 2½-foot triangle is turned under at each back corner. Weight these with a pole and they need not be pegged. A corresponding triangle of unused cloth at the front is shown folded around the supporting pole. It should be

rolled around the pole. Tie a bit of cord through the grommet *b* (see Fig. 1) and around the pole, then roll until the grommet *e* is reached. Tie sash-cord through the three grommets *e* and *a* and around the ridge pole.

The sketch in the centre shows a simple wedge tent with open ends, floor 6 x 7½; height at peak 5½ feet. That on the left shows how to utilize part of the tent-cloth as a poncho for the bed, to keep down the ground dampness, and the balance for a lean-to roof. Poncho 4½ x 7½; roof 7½ x 7½; height 4 feet. The wedge is a good rainy-day shelter for several Scouts. If the rain drives in at one end, hang a poncho there. The sheds are best for cool weather. Build your fire about six feet from the front, and have a good reflector for it. More about this in other chapters.

The Phillips Tent. — My other hiking tent is ordinary and old-fashioned enough, the tent part of it being like Nessmuk's favourite, "only a sheet of strong cotton cloth," of nearly the same proportions, being 7½ x 8½ instead of "9 x 7 feet." But attached to it, in fact an integral part of it, is an 18-inch wall with a clothes pocket and a stretcher-tick. It is therefore tent, wardrobe, and bed all in one; complicated yet simple. It can be pitched in a half dozen different ways on the ground and the bed made either a stretcher or a tick filled with dry leaves, dry grass or ferns or browse. And it can be slung between a couple of trees and the bed used as a hammock. The several sketches show how it works, and the diagram, Fig. 4, gives the dimensions. With this and the instructions for making the other tent before you, a few particulars should be all you will require in addition.

Get 5½ yards of the heaviest unbleached cotton sheeting,

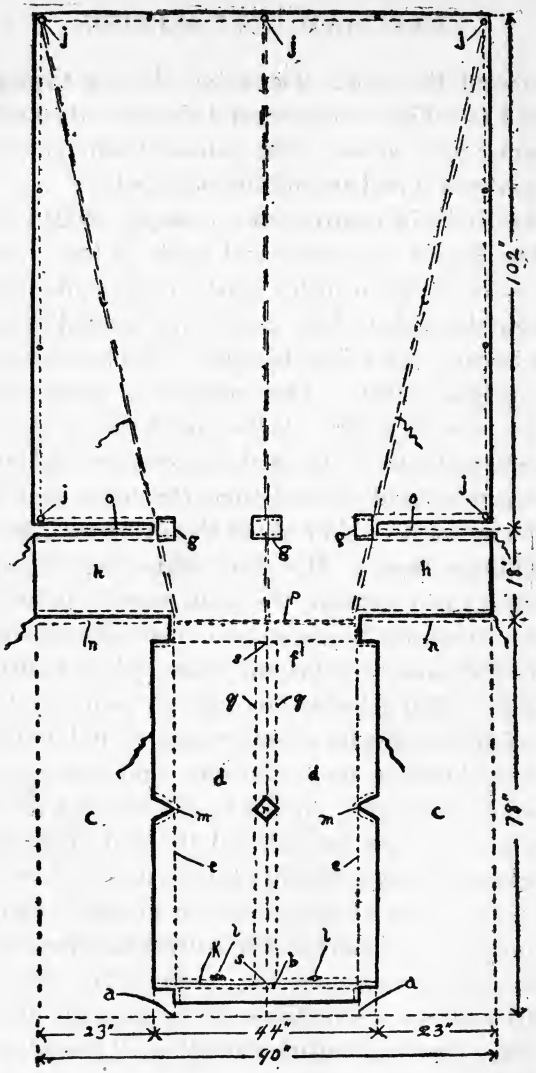
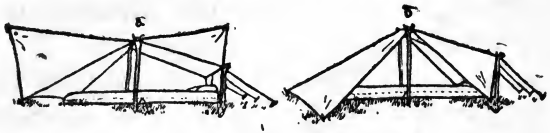


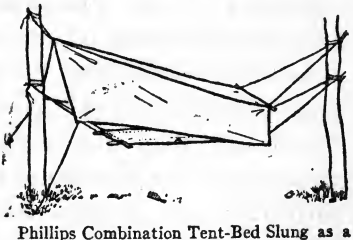
Fig. 4. — PLAN OF THE PHILLIPS COMBINATION TENT-BED

90 inches wide. Spread on the floor and make a 6-inch cut at *a*, *a*, (*for a double bed*), a 26-inch cut at *n*, *n*, and a 23-inch cut at *o*, *o*. Fold the flaps *c*, *c* over on *d*, *d*, and sew together, *but not to d*, *d*. Sew through both thicknesses along the lines *e*, *e*, *q*, *q*, and *f*, making the *e*, *e* seams



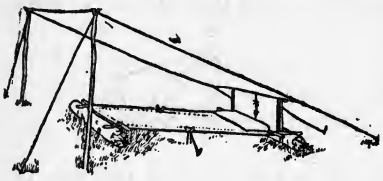
Two Views of Phillips Tent Pitched with Tick and Ridge-Pole. In *a* the Flaps are Up, Showing How They May Be Turned Back; *b* Shows Them Pegged Down for the Night

3 inches from the edge of the doubled goods, seams *q*, *q* 3 inches apart, and the *f* seam same distance from the end. Sew both thicknesses together along the line *p*, and hem at same time. Now fold up the four thicknesses at the bottom and sew at *b*, making a hem at the same time. Cut the four corners as shown in diagram, cut out notches *m*, *m* and the square hole *r*, and hem and bind these seven places, using tape where necessary. To bind the notched corners, cut a strong piece of chalk-line cord and bind it in the corner under the goods, using waxed linen thread to bind with, as in binding grommets. Before turning the goods over so the seam in the centre of the stretcher is underneath, cut the *bottom* sheet along the line *k*, including *s*, and as close as possible to the seam *b*. Hem this, bind the corners, cut and work buttonholes at *l*, *l*, sew buttons on the top section



Phillips Combination Tent-Bed Slung as a Covered Hammock; the Bed is a Stretcher, Made by Lashing the Poles

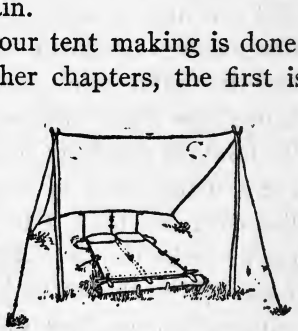
to button in these. Cut the bottom sheet at *s* at the head of stretcher, hem and bind corners. Now your stretcher-tick is finished — for two. For a single occupant, make the stretcher 30 inches wide, and of course with no "pole hole" in the centre. Now turn the goods over.



Phillips Tent Pitched as a Lean-To, with Stretcher for Single Occupant

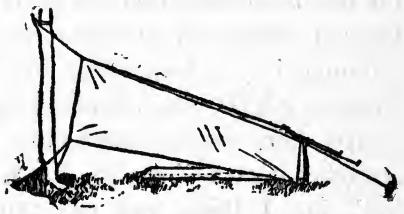
To complete the tent, hem the wardrobe flaps *h*, *h*, bind corners, attach tapes at ends, sew ½-inch tape along the lines *i*, *i*, and down the centre, attach the pole loops *g*, *g*, *g*, hem outside of roof of tent, and bind in the grommets. Those marked *j* are necessary; the others will enable you to peg down snugly against wind and rain.

Tarp Tent a Raincoat. — So your tent making is done! In mentioning these tents in other chapters, the first is referred to as the "tarpaulin" tent, because when taken down it becomes a simple flat "tarp," folding more compactly than any "made up" tent and useful in many ways. Waterproof it with turpentine and paraffin, following the instructions I give you, and as a tent it will never leak (unless torn or burned by sparks), and I will tell you how to make an excellent raincoat of it also — better than you will believe. In Chapter XI you will find a series of illustrations, showing you how to wear a blanket



Phillips Tent as a Lean-To with Double Stretcher

Indian fashion, as an overcoat, For a big long raincoat (too big for any but a big boy) fold your tarpaulin tent once, making a doubled sheet, 6 x 7½. Hold it by the doubled 6-foot side, put it on in the same manner as instructed to put on a blanket, using the tent-rope to girt it about your waist. If you want to carry a pack, let the hood drop around your hips, shoulder your pack, and then pull the hood up over the pack and shoulders. If you have not left the "skirt" too long there will be all the room you want under the hood, no matter how big your pack is. For average use, it should be folded twice, to 3¾ x 6 dimensions. Hold it long way vertical, belt it snugly around you and have it so the hood hangs down over the belt all around, and it will not "soak through" at the waist. Pull the collar up around your head, tie a piece of rope around your neck, fold the collar down, and the hood or cape will "stay put" without holding. The cape will fall to your waist in front, giving you plenty of arm room if you want to work. To keep the arms dry, fold them under the cape.



Phillips Tent Guyed to a Tree, with Tick for Two

The second tent also is adaptable for use as a raincoat, when waterproofed. Run a cord through the bottom hem of the stretcher, fold over on the tent and tie to the grommets at the other end, or top of tent roof; fold again, to 4¼ x 7½ dimensions and four thicknesses. To distinguish this tent, I have named it the Phillips tent, after W. S. Phillips, a Western sportsman and one time prospector,

from whom I got the idea of using a single length of 90-inch sheeting for both tent and ground cloth. Making a stretcher by folding over the two outside thirds of the ground cloth (making a 30-inch stretcher), and sewing it as I have described, and making a wardrobe pocket to put my clothes in at night where they would be dry occurred to me as a logical thing to do, and turned out to be very satisfactory, to me at least. The tent can be used for one, two (with the 44-inch stretcher), or even three, but in the latter event, the bed must serve as a tick. The stretcher when made for one is so wide there is never any difficulty about the blanket sliding off at night, no matter how you use it; although if you know how to "roll" in a blanket (see Chapter XVII) you will never have this to bother you, no matter how narrow your cot. To fill the ticks of the stretcher if made for two, use a stick to push the "stuffing" in. I think you will generally prefer to use the stretchers.

Waterproofing. — To waterproof your tent-cloth and stretcher, and do a good job of it, I advise the turpentine and paraffin formula, as given in the "Official Handbook of the Boy Scouts of America," and which is a reprint of an article I wrote for *Recreation*. Take a cake of paraffin (weight, 1 lb., price 10 cents), shave fine and put in a gallon of turpentine, which you should have in a metal pail. Place the pail in a larger pail or a boiler or tub of *scalding* water. Do not take the turpentine near fire, as it is inflammable. The hot water will heat the turpentine, and the hot turpentine will dissolve the paraffin. This is not advised by Kephart or Breck, but is the best way. Stir thoroughly, and renew your supply of hot water if

necessary. When paraffin is all dissolved, pile your tent into a tub and pour the waterproofing solution over it. Work the tent all over carefully with your hands, so that every fibre gets well saturated. You must be quick, for the paraffin begins to thicken as it cools, there being more of it than the turpentine will "take up." And work out of doors, in a breeze if you possibly can, as the fumes of the turpentine will almost surely make you sick if you try it in a room. When you have the tent thoroughly saturated, hang it up to drip and dry, but do not wring. It will take it a day, maybe more than a day. Meantime, waterproof your stretcher, *but not your provision bags*, with the left-over turpentine and paraffin mixture.

The tent will look rather dirty after it dries, if you have used enough paraffin, but it will be all right except for the odour, after it has been out in the sun for a day. The turpentine odour will be rather offensive at first, but you will not mind it after a few days.

Some use gasoline instead of turpentine, but this is dangerous. Better pay the extra cost of the turpentine and not run the risk of a bad accident. Furthermore, if you use gasoline you have nothing but paraffin to *waterproof* your tent; the gasoline all evaporates and only the paraffin remains. Turpentine, on the other hand, considerably assists in rendering the cloth waterproof, and it stays with it indefinitely. A tent "paraffined" in this way is never stiff and greasy, like the ordinary "balloon silk" tents made by the tent makers. And it turns the water just as well; better in the long run, because it does not crack, as they do.

Sugar of Lead and Alum. — I have also used the sugar of lead and alum formula, and found it quite satisfactory.

I have seen any number of different formulæ, and dare say they all give about the same result. I will give the only one I have used, which is one that has long been employed by hunters in Ontario where I used to live, and does not entail half so much preparation as is usually prescribed: Dissolve 4½ ounces of powdered alum in 1 gallon of hot rain-water, and in a separate vessel 4½ ounces of sugar of lead in another gallon of water. Pour together into a third vessel, stirring well. Pile in the tent, stir well with a clothes-stick (broom handle), and let soak for a couple of hours. Wring out with the hands, rinse once in clean water, wring again and hang up to dry. Clothing can be waterproofed in the same manner, and if you are a "wet or dry" hiker it will pay you well to take the tip. Sugar of lead, by the way, is poisonous if taken internally.

Now that you have been to so much trouble to get a tent that is *right* — which no "dog" tent or other ready-made arrangement is — take care of it as zealously as you guard your axe. When you build your camp-fire, remember that "what goes up has got to come down" applies to sparks. Don't let some chump pile a lot of dead brush on the fire and send a shower of sparks aloft to come down on your tent and burn holes in it.

Have a Good Bed. — To conclude, I want to tell you that among hunters the raw tenderfoot who gives no promise of ever graduating from his class is known by his willingness to sleep on the ground. My favourite camp bed is the best that money will buy, a pneumatic mattress and a pneumatic pillow, both of which I inflate by "lung power." And I am not ashamed of it, and have plenty of good company. The man who sneers at such a bed invariably has

never slept on one. We do not go to the woods to rough it, but as Nessmuk said, to smooth it: "We get it rough enough at home; in towns and cities, in shops and offices, stores, banks — anywhere that we may be placed — with the necessity always present of being on time and up to our work; of providing for dependent ones; of keeping up, catching up, or getting left." But, alas! my pet bed weighs too much to go on hiking trips. And so I tote a stretcher-tick. But, take my word for it, I make it comfortable before I turn in. This generally means that it is rigged as a cot, with good strong stakes to support it midships, and these guyed out so I may "flounce" about to the full extent of a real flapjack nightmare without danger of coming down. Have a good bed! Some day you'll agree with me that it is half of camping.

A Good Camp-Site. Two Lean-To Tents and a Fly Between Them, Making an Ideal Fair-Weather Camp

CHAPTER VIII

MAKING CAMP

NOW that I have helped you pick out your outfit, suppose we take a little overnight hike. Say we leave home on a Friday evening, after school, rather early in the month of March. Starting the season in typical boy fashion by being a little previous, you may think, until I tell you where we are. This is the only hike I can make with you. The next one, in the next chapter, you will have to make alone. After that will come a patrol hike, and last a troop hike. You will notice I am devoting a chapter to each season of the year, and each hike is made in a different part of the country. This is in order that I may get close to *your* hiking in at least one chapter. We live in such a big country that camping conditions vary greatly. So to start off with, thus early in the season, I am going to take if for granted that you live in Florida.

A short trip as a starter, say not more than three miles. And at that we have stopped a couple of times for a short

rest. Now, at a few minutes after five o'clock, we are come to our camp-ground, a bit warm, apprehensive of mosquitoes, and in a hurry to get camp made before dark. It is a flat country, is Florida, taken by the large. And we are on the flat East coast, in the prairie country of the upper Indian River. But what a place to see and hear the wildfowl! Too bad, indeed, that we did not come earlier in the year, before they started northward.

Choosing a Camp-Site. — For our camp-site we have chosen a knoll of "hummock" land that strives bravely to be a promontory in a country of no promontories by shouldering close to a little fresh-water lake, of which there are thousands on these prairies. On our knoll there is a scattering growth of pine and live oak trees, and surrounding it on all except the lake side, a fringe of palmettoes. The coarse prairie grass and the scrub palmettoes grow waist high. We might almost as well have left the tent at home, for it is no trick at all to thatch a lean-to with the broad palmetto fans. But — the mosquitoes!

These countless shallow lakes and ponds of the prairies, so attractive to the wildfowl and so pleasant to be about in late fall and winter, in this semi-tropical climate, are bound to breed mosquitoes *all the year round*. And by the middle of March they begin to get pestiferous. We've got to keep them out, or we'll not get much sleep. We have wisely selected our camping ground on this knoll, where we are sure of dry ground and a breeze. The latter, of course, will perhaps keep the mosquitoes away; but we are to have a good time, and not taking any chances. Now to make camp.

Dividing Camp Duties. — First we will rustle some fire-

wood and a couple of forked poles for the tent. Dead pine limbs furnish all we want of the former, but we have to hunt industriously for our crotched tent poles. What are you staring about? *Two* poles? Why, yes — for our wedge tent. I'm not letting you start out with a real hiking tent. I brought a "made up" tent, such as you might buy, to give you a chance to try it before deciding you want to go to the trouble of making a tarpaulin or a Phillips tent. As I was saying, poles are scarce; there's no underbrush and mighty few saplings out here on this knoll. Burned off by a grass fire? No, it's prairie country, that's all; trees don't grow profusely on this kind of soil; too much sea sand in it. You rustle some firewood and I'll get the poles. Select dead limbs that are not lying on the ground, if you find plenty.

Here we are! A couple of live oak saplings, trimmed long, The branches above the fork of each will make tent-pegs and the like. When you have to lug wood, bring the tree with you. Now, while I am cutting these and working up your firewood, take the tent and go and collect a big bundle of that moss (long moss) hanging from the live oaks; don't be afraid of getting too much. We want it for our bed. Eke it out with pine straw if you find it slow work getting it.

How to Make a Fire.—Everything ready? Now to make camp. First we'll light our fire, and while it is burning down to coals we will pitch the tent, make our bed, and prepare our grub for cooking. Right here in this little clear patch of sand is the place for it. First we select three small sticks cut from a dead branch that has not lain on the ground, and whittle them in the form of "rosettes," as in *a*, Fig. 1,

leaving the shavings attached. These we stick in the ground as shown at *b*, making a sort of tripod, with the shavings sloping downward. Now a few dry splinters made by splitting up a couple of dry sticks the size of your thumb are stacked around the tripod, as at *c*. On one side I have a bunch of dry twigs of lead-pencil size, and on the other some larger split wood. Split wood burns better than round. To strike my match, I squat *facing* the wind, strike the match and hold in my cupped hands with the stem up and the head down and pointed into the hollow of my hands, toward the wind. Fire goes up, so a match when struck should be held vertical, *if there is no wind*. As there is a breeze, the match is held with the head pointed toward it when it is struck; in this way whatever breeze strikes it before I can get my hands cupped around it will blow the blaze up the stem, not away from it. When my match is blazing nicely I hold it down, still guarding it carefully, and quickly touch it to the shavings of the tripod of rosettes. As they also are slanting upward, and not smothered with too much other wood, I have a blaze in a jiffy.

Fig. 1. — How to Build a Fire

One at a time I add the twigs, building the fire up gradually and standing every stick on end, leaning on the burning cone. The big sticks come last, added from time to time so not to smother the blaze; and finally they all are blazing merrily. And you have seen the regular woodsman's way of lighting a fire.

But what a small fire, you say?

Plenty big enough. For a cooking fire for one or two you

should not stack up more wood than you could shelter with your hat if you were to pile it up and put the hat on the point of the cone. You don't need a big fire, and besides, it would be so hot you could not get near it.

Cutting Tent-Pegs — With the fire started, we will pitch the tent and make our bed. A few clips with the belt axe and the nine pegs are ready. Notice how long they are; two of them are in reality stakes a foot and a half long, and the rest are a foot long at least. Always cut your tent-pegs long and they never will be too short. In this sandy soil eighteen inches is not too long for the guy stakes and corner pegs. And always chop a stick on an angle of about 45 degrees, never across the grain at a right angle.

Now for a look at the ground; we want a smooth level spot free from long grass, and we must clean it up, pound down the lumps and fill the hollows before the tent goes up. If we were to make our bed on the long grass, hoping to derive some advantage from it, the hummocks of grass roots would before morning worry us as much as so many stones, and the grass would be damp. Four poles laid to make a rectangle 4 x 7 feet, and staked on the outside so they will stay put, give us the frame for our bed. This must be staked out before the tent goes up, as driving the stakes afterward is not feasible — unless it is raining, when "you drive them when it clears." For the same reason a stretcher bed must be made before the tent is pitched over it, unless using a big tent.

Pitching a Wedge Tent. — The two crotched poles are already cut the proper length, because I know it is just 5 feet 3 inches from the tips of the fingers of one of my

hands to the heel of the other hand when I spread my arms out at full reach. And the height of our tent is 5 feet. So up goes the tent. And while we are about it, just notice how much work there is to it. It keeps two fellows busy to put a wedge or A-tent up properly in five minutes, and it is an awkward job at that. First we drive the guy stakes, placing them well out fore and aft, say so they will be ten or twelve feet from the tent. Next we make the tent rope fast to the rear stake, run it through the large grommet at the aft of the tent ridge, and through a similar grommet in the cheesecloth tent inside, knot it, carry it forward, measure, knot, pass through the fore grommets and carry it out to the stake in front. Then we lay the tent over on one side of our bed and peg out that side, so arranging the peg loops on the pegs that they will be in proper position when the tent is erected. The crotched poles are now laid in position engaging the tent rope at front and back of the tent, and the tent rope tightened to what is thought suitable tension to hold the tent erect. Now if you were alone you would stand at the centre of the bottom of your tent, grasp it at the ridge with both hands, and haul it up "on its feet." There being two of us, each will take hold of a pole, and, having raised the tent will peg his corner down. Lastly, the tent rope must be tightened, adjustments made and the remaining three pegs driven. And our tent is up — less a small matter of driving ten more pegs, seven of which we will not bother with, one at each corner, one in the middle of each side, and one at the back being enough to hold.

No time to admire our camp now. While you lay some

palmetto fans on the floor, distribute the moss, spread our ponchos and lay out the blankets, I will be getting supper started.

You want to watch, you say?

All right. Let me have your cooking pot; I'm going down to the lake for water. I'll help you spread the blankets when I come back.

The Odour of Fried Bacon. — Bed made, now we're ready to put the finishing touch to the camp. All it needs is the odour of — what? Why *bacon*, of course, fried sure as you live — and it will be welcome *where* you live, too, or I miss my guess. When Kipling wrote "Who hath smelt wood smoke at twilight," he hadn't been carrying a pack. The wood smoke smell is all right, but the bacon smell makes *my* mouth water.

Lake water all right for coffee? Sure. If you want a drink of water there's some in my canteen.

Now you see I didn't build any rack over my fire, to be burned down, perhaps, before I was ready to use it. Not much fire there? More than you think. I put some split sticks of green oak on it when you weren't looking. I have a couple of the full-round ones here, two feet long, hewed flat on one side, to serve as bed-sticks to set my pots and pans on. I'd rather use stones, as the wood will smoke a little, but I haven't seen any stones big enough or of the right shape. See, I put them so they are about six inches apart *on top* at one end and two at the other. I had to trim them a little on the inside so they would not crowd the coals too much. Notice I throw out the butt-ends of firewood that have not burned; they are in the way, and

A Hiker's Range

they smoke. Now I have a long "forest range," with the wide end pointed toward the breeze. This will serve our purposes to-night, and in the morning we will make another. The reason for having the "trench" face the breeze is that otherwise the bed-sticks would serve as a wind-shield, whereas now they give the fire a draught. See the coals brighten up? On goes the second cooking pot, with water for the potatoes.

I brought the supper grub, you that for breakfast. This simplifies cooking and does not disturb your pack to-night. Coffee water's beginning to steam already. I brought a couple of things in the concentrated line, to introduce you to it. If you stay a camper, and I know you will, you'll "wear out" a lot of this sort of grub, as a guide of mine once said. Here in this little friction-top can which I could put in the pocket of my coat I have our potatoes. They're evaporated, and equal to about six times their weight of the fresh article. I'm a potato "fiend," and this evaporating business makes me happy. I've 12½ cents worth of potatoes, or 8 ounces, enough for a meal for both of us. They look like Saratoga chips, don't they? Into the pot they go. I let them simmer awhile till they swell up, then strain off some of the water and stew them. Wait till you try them.

Hiker's Pot-Hook

Coffee water's boiling? Well, take the pothook there and set it back where it will keep hot. We are going to have concentrated coffee, too.

A Difference in Soups.— Here goes for soup; no, not the evaporated kind, but that which comes in the plebeian tin can. I'm not ashamed to say I've a small can of ox-tail for each of us. We might get along with a couple of "beef

cubes," each weighing about a quarter of an ounce, and costing 3 cents and good for a cup of beef tea, but I prefer to *eat* something. There's no sense in going light to the extent of taking concentrated nourishment in place of a square meal on a little two-meal hike like this. That bread-pan up at the narrow end of the range has some water in it that must be about hot enough by this time. Watch me juggle it with my detachable bail. See the three holes in it under the rim, two on one side and one on the other? I just hook this jointed bail in them, so, and I've got the pan. It won't tip, either, because of the three points of suspension; ordinarily a shallow pan is very tippy when carried by the rim. You can rig your bread-pan the same way. I'll just add a little of the water for the coffee, and pour in the soup. No, don't use a knife to open a can; use your axe. Cut a cross in the top and pry up the jagged corners.

Cold Grub from Home. — Now we'll be getting out the cold victuals: cream cheese and lettuce sandwiches, wrapped in damp cheesecloth and done up in paper. (I brought them in the cooking pot, in my pack-sack.) Also, four good juicy jam sandwiches, wrapped in oiled paper. That is the package I put in *your* cooking pot when you said there was nothing in it but your cup.

Here is my concentrated coffee. I carry enough for six cups in this tiny friction-top can. I just put a teaspoonful in each of our cups and fill with hot water. It dissolves almost immediately, and all we have to do is add sugar and cream. It is excellent coffee, too.

For sugar I always use the real thing. The substitutes, saccharine and crystalose, are mere sweeteners, having no

food value. Sugar is good for you. Milk I carry in a small screw-top glass, the glass generally in a tin-and-cardboard mailing case. I do not use ordinary condensed milk, but the evaporated kind. My bottle holding 4 fluid ounces contains plenty for both of us for two meals.

While I've been talking away, I've had the bacon frying. I haven't said anything because it has been so much fun to see you wiggling your nose like a rabbit just at the good promising aroma of it. Now I'll build up the fire a bit, as I shall put the dishwater on as soon as the coffee-water pail is empty. What do you think of a bed of live oak coals as a cooking fire?

Well — we're ready! "Go to it," as they say in the bush.

* * * * *

The Hiker's Appetite. — Those stars indicate the passing of time with nothing said. That is the way we eat on the trail. Meal-time is eating time; if a fellow wants to talk, he can do that afterward. "Everybody's chewing it," and any interruption results in a growl. If you ever eat in a lumber camp with the crew, you will see man eat his level best, if not his prettiest. Hard work in the outdoors develops that kind of appetite. And as I have remarked before in this book, hiking with a pack is hard work.

Dusk has come and we have not noticed it, the fire, having been built up, furnishing our light. I'll get out my folding candle-lantern.

Funny there aren't any mosquitoes, you say?

Well, yes, although to tell the truth there is a surprising absence of the pests in Florida, everything considered. Northern folk who know what the topography of the state is,

cannot understand that it is not "eaten up" by mosquitoes. Not being interested in mosquitoes, I have not inquired into the reasons why their status here is not better. It is good enough for me, as the cheesecloth tent inside the other one doubtless suggested to you. They drive me wild. And I detest smearing myself up with dope, while I've never yet seen the smudge that did much good.

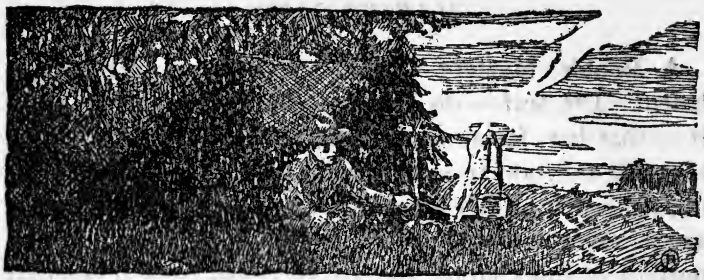
Around the Camp-Fire. — With the dishes washed and put away, and our beds made up, we can lounge awhile. If we only had a tarpaulin tent we could open it up in front and enjoy the camp-fire, for there is a suggestion of dampness in the air. Just think of having pine knots to burn and no shed tent to sit under! Yes, and that reminds me to tell you that although this beautiful wedge tent we have provides floor space of only $4\frac{1}{3}$ x $7\frac{1}{3}$, and is only 5 feet high, giving it the same "accommodations," practically, as my "tarp" tent, it weighs exactly twice as much, in balloon silk and costs $9.85!

Notice how still it is? A little earlier in the year we would hear all kinds of wild-fowl trading back and forth; for this is a great winter resort for them. And they are all night-owls. Now if we could be out on the marsh we might encounter around the ponds or lakes such other night prowlers as the otter, the wildcat, the raccoon, the alligator, the mink, and of course the 'possum and the rabbit. They are all about here, plenty of them; for this is real wilderness. But they keep discreetly hidden one and all, in the tall marsh grass and the water, and one needs rubber boots and daylight to even find their tracks. We would be lucky to see a couple of the few half-wild cattle that are the only "civilized" tenants of the prairies.

A Double Mystery. — Smell the pine scent! And— listen! The surf — do you hear it? Listen again. Hear it — that low, far-away, rushing noise, something like the sound of a distant train? That's the old Atlantic hammering the beach away eastward there, across the river, miles away. You know the sound, presumably, because for the purpose of this chapter you are supposed to be a seacoast boy as well as a Southerner. No matter where you are, even the thought of it will always thrill you; for there is so much of mystery about the sea.

Yes, and you presumably are a sleepy boy, too, by this time. Same here. Rain? No. Didn't you notice I did not ditch the tent? That was not only because I sensed that big round moon was coming, but also on account of our tent being pitched on sand. We wouldn't need to ditch for a downpour, because the rain would all filter down into the sand. And that reminds me — I dug a filter down by the lake, with my "digger." We'll have fresh drinking water in the morning, in the form of seepage from the lake, filtered by the sand and gravel. As good water as any we could get in Titusville.

And speaking of mysteries, we will let the matter of breakfast become one, and so remain, and turn in.



Going it Alone

CHAPTER IX

HIKING ALONE

IT IS a good thing for any one to be entirely alone in the out-of-doors once in awhile, and take stock of philosophy and other character resources. In fact, the stock may be found so low it would be embarrassing to be otherwise than alone. And under any circumstances the experience is refreshing, to say the least. Whether or not one gathers new reserve of confidence and energy, as one is pretty apt to, there is an overpowering feeling of getting well *rinsed*.

Now I suspect you are thinking of the long "lone" trips Daniel Boone made, and wondering how he survived feeling entirely washed away! The best thing for *you* is to try it on yourself. I mean for you to make a hike "by your lonesome."

And that immediately is a horse of another colour. Hadn't thought of doing a thing like that, had you? Don't exactly like the idea, do you? Afraid?

"By Your Lonesome." — I'll drop the rôle of prompter and let you go on alone.

No, you're not afraid. But somehow you feel kind of queer, to think of spending a night out in the woods all alone. You're so used to the exact opposite — living in a house, with other people around you all the time. Come to think of it, you figure that not many Boy Scouts have ever "slept out" in the woods alone, whereas the real Scout does it many a time — if he isn't scouting all night and "hiding up" in some thicket to sleep in the daytime. You'll try it!

Getting ready amounts to nothing more than usual up to a certain point. That is to say, where you have to tell where you are going, and the other main things about the prospective trip. Dare you tell?

It is peculiar, but the instant you mention going alone there is objection by the Powers that Be. Just why, goodness know. By the same token, if you were to tell a chum or two, you would cause bad feeling; for they would surely want to go. And that would spoil it, so far as the main purpose of the trip is concerned. Best make all your preparations, make sure no possible objection can be raised except that you are going alone, and then declare your purpose. But let it be known at home only.

At last you are off, with a light outfit and two days' rations. It is the very first day of your summer vacation, and the folks at home gave their consent to what they called your "foolish notion" as a tribute to the way you galloped away with your exams. Or perhaps you are already enlisted in the great army of bread-winners, and through much obedience to beck and call have well earned the right to indulge yourself with all the independence you can pack into your days off.

Out the Back Way. — You have to sneak out the back way and do some clever dodging to avoid meeting any of the Scouts, for despite your intention to get an early start, the lawn-mowers are going. You get to the trolley line just in time to catch the interurban car, swing aboard and grin as the conductor asks you if you are "going cruising."

But where *are* you going, anyhow? Why, out the line a few miles, to a certain road that leads to a little lake you know about, where all the people in Kalamazoo don't go to fish. That will place you where you will not have to hike through these interminable celery farms and vineyards, too. You've just *got* to get into a bit of wild country, being a true son of the Wildcat State. For the same reason you are carrying a "Made in Michigan" bait-casting rod and intend to eat broiled black bass for supper or know the reason why.

Off the car at last! How good it feels to shake the cramp out of your legs. With your pack on your back you swing into the plunging, "long shank" stride the folks at home make so much fun of, but which "floats" you along in great shape. Heading north, your shadow tells you it is getting along toward time when carrying a pack is going to be hot work. And you have five miles to go on sandy roads. The kind of sandy roads that have "made Michigan infamous" among automobilists. No English shorts and Oxford shoes here! The thought makes you smile. Hat in hand, sleeves rolled up, shirt unbuttoned at the throat, your leggings strapped loosely, canteen nudging your hip, you pound along. The haying season is just starting, and the countryside is vocal with the staccato of the machines. And, my! how good it smells. The phrase may be trite, but

the odour of new-mown hay is ever as fresh as the proverbial daisy. It is a delight to be abroad on such a day, and have a part in such a scene. You are more than halfway to the lake before you know it. It certainly is worth while to know enough to "keep plugging" if you have to hike on a sandy road.

Warmed Up. — "Whew!" you remark aloud. "Some hot!" And down goes the pack in the shade of an oak. You unsnap the canteen and wash out your mouth, then take a couple of moderate swallows. "More!" yells the parched "dry spot" inside, and "Take more," gurgles the jolly, fat canteen. But you're getting to be a sly old wolf on the trail. "Nix," you reply. "You don't get *me*. I've got a date with a new rod and it's a long way to a hospital."

You "sit down" on your back with your head and shoulders against the pack, leaning against the tree, and you "grin to yourself" about this habit of talking which cropped up as soon as you fully realized how completely alone you were. You look up at the tree. "Scarlet oak," you comment — and grin some more.

Five minutes up, you get going again. You start out deliberately, careful not to kill yourself off by throwing in the high gear too soon. Another protracted period of silent plodding, with expense of more good honest sweat as the sun grows hot, and the "lake woods" are in sight. That entitles you to another rest, and you take it.

When at last you put the pack down at the lake it is almost nine o'clock — and you're wearing the wettest undershirt in Kalamazoo County.

"Huh ' you say to yourself, "now I know why the

Indians called this neck of the woods 'Ki Kalamazoo.' It sure is 'the melting pot.'"

You get out your spare top shirt and change, spread the "wash" to dry, and sit down to cool off. You would like to take a swim, but know better than to do so when hot and fatigued. Besides, there is the camp to make; for you want to fish in the late afternoon, when the bass come in to the shallows. Just wait!

A Woodcraft Camp. — You were tempted to bring no tent-cloth, knowing you would find abundant white spruce saplings with which you could make a lean-to. Finally you compromised and brought a poncho. And now you set to work to make a lean-to with it. Instead of building a frame in the usual way or stretching the poncho by means of a series of short guy ropes tied to a supporting rope between two trees — a good stunt, by the way — you select a couple of small spruces that stand out by themselves on the edge of the open knoll where you have stopped, and are the right distance apart. You lop off the branches on the side of each that faces the other and stretch your shelter between them, in the form of a shed roof, pegged to the ground at the back. This not only furnishes you tent poles already placed, but the ends of your tent are already thatched and you have sufficient browse for your bed without going a step for it. A neat trick, you think, but there is a neater one still, which you will learn in due time if you follow woods ways.

It doesn't take long to make such a camp. Picking the browse—it should be done by hand, as there is a tendency to lop off *branches* instead of browse if you use a sheath knife or a belt axe — and shingling the bed constitute the

larger part of it. You lay four poles on the ground, forming the boundaries of your bed, and wherever necessary stake them against rolling outward. Then, starting at the head of the prospective bed, you lay a row of the spruce fans, butts down, concave bend of stem up, tips overlapping the head pole. Row after row is added in the same orderly manner until you reach the foot. Then you start at the top and shingle another layer. A poncho spread on top would save your blankets somewhat, and keep down dampness, but why quibble, with bough beds so scarce these days!

How to Browse a Bed

Camp Chores. — There is a spring you know about that needs digging out, and you think you will trench the lean-to. So you get out your "digger." And between this work and scouting for likely bass coves, making a forest range and working up firewood, noon comes before you realize it.

Lonely? No, not yet. Been too busy — and happy.

After dinner you get out your tackle and rig up, and for a half hour practise casting for accuracy, using a tournament weight instead of a lure. It is well to get your hand in, for you will be at a disadvantage in fishing from the shore — but, hold on! Why fish from the shore, even if there isn't a boat on the lake? You were going to wade, of course, but that amounts to almost the same thing. Now, a raft ——

Building a Raft. — Where is the Scout who does not know enough about pioneering to build a raft? A raft is in

order, and what with cutting the necessary poles, and lashing them with wild-grapevines, fishing time will come and you will not get your swim. No matter, you'll get it first thing in the morning. Willow is selected because of its buoyancy and there being a good thicket of the sand-bar variety close to camp. It is nearly valueless and you feel no qualms about cutting it. Luckily you find a couple of 5-inch trees which give you four good 6-foot logs. Dry wood would have been better. With some smaller poles lashed across them, and a couple of pieces of board picked up on the lake shore nailed (with old nails found in the boards) on top to furnish a smooth footing for bare feet, you have a good raft. But how it sinks when you get aboard! Not very buoyant after all. Logs are too small. But it will serve. And with your rod taken down and slung over your shoulder with a cord, you push out, using your pole in a manner that, to see you, would make an Illinois River duck hunter's "pusher" fall overboard, but getting there just the same. And you anchor successfully, sixty or seventy feet out from a likely cove, by pushing the pole down between the logs of your raft and ramming it into the mud. Now for action!

"Whizz!" goes the reel, and your lure, a salt pork imitation of a minnow, on a Seward "weedless" hook with a spinner on the shank and a weight on the trailer, plops into a little bay at the edge of the wild rice and rushes.

The Gamest Fish That Swims. — "Splash! Slam!" Gee! Something doing in a hurry. Got one right off the bat. You struck the hook home with a strong twitch of the rod the instant you felt he had the lure, for he would detect the hook in short order and eject it. Up out of the water

he goes, in a desperate attempt to throw the hook out. "Splash!" Letting a bass swim away with the bait and turn it around in his mouth and swallow it may be all right for the fisherman who baits with live minnows. But your way demands a fight from the first tug. You grind away on the multiplier, and don't let Mr. Bass get any slack line, not even when he jumps. Once again he jumps and shakes his head. He's a small-mouth for sure. Now you can see him in the water, darting from side to side, fighting his little best. How green he looks. And how you have to watch out now to prevent him from making you feel green, by darting under the raft. Let him get one hitch around that anchor pole, and — good night!

But that must not happen with the very first fish on a new rod. Gently but firmly you wear him down, then you slip the net into the water behind him, let him drop back into it, and with a lift he is yours. Yes, he's a small-mouth, "inch for inch and pound for pound the gamest fish that swims."

Mercifully — and prudently — you dispatch him while still holding him in the net, with the hook in his mouth. Keeping fish alive on a stringer is, next to taking more than can be used, the worst fool thing an angler can do; yet thousands persist in it and call it "keeping them." Who wants to eat fish, flesh or fowl that *died*, as such fish do die, slowly and painfully. A rap on the head with the axe handle does it. Then he is strung on a cord and slipped into the water, to trail from the raft. He weighs but little over a pound, but he pulled like a two-pounder. Another like him, and you'll have to quit, as you must not take more than you can eat for supper. You soon get him.

Time to Eat Again. — For your supper fire you have cut and split an armful from a white ash windfall. It is dry, hard, and will burn down to good lasting coals. Burn just about as well if it were green. Chops and splits easily, yet you're glad you have a new straight 20-inch handle in your Scout axe. You sure can *chop* with it. But wait till you get a new head, a good one, of the proper wedge shape.

Your dinner was in reality a cold lunch, with only coffee to appease a rather strong desire for something hot. Now to eat!

SUPPER

Barley soup
Broiled small-mouth black bass
Macaroni and cheese
Baked potatoes
Raspberries and cream
Fresh bread and butter
Tea

That is the prospect. And a long evening to prepare and eat it. Broiling is simple enough. You brought a wire broiler along for the purpose, and you know enough to grease the broiler so it won't stick to the fish, which of course you split in halves, removing the spine. The berries are to be had for the picking, big, luscious red fellows such as Michigan's sandy soil produces, all you want of them right in camp. You figured on them too, and instead of any kind of dessert brought extra supplies of sugar and evaporated cream.

A Camper's Crane, or Dingle-Stick

The macaroni and cheese is the only problem. But first you put the potatoes to baking, in the hot ashes — not embers — at one end of the fire. You have both your pot and your bread-pan on the fire, the former at the wide end hanging low from a dingle-stick, or camper's crane, and the latter sitting on the bed-sticks. When the former comes to a boil, you put in a teaspoonful of salt, and get out your little bag of macaroni. You have about a quarter of a pint, broken into short pieces. Nothing to do but dump it in the water and let it boil for about thirty minutes, so far as you can remember. "Well, here goes," you say aloud, and that is one more worry disposed of.

Dressing Fish. — Then you go get your fish, which you left at the raft. To dress them — what on earth makes you think that you can eat both of them? — you straddle a log, and commence by scaling the largest one. You hold him by the head, tail toward you, and with your fish knife scrape toward you; around the fins and gills you scrape at right angles, using the point of the knife. Both sides scraped, you sever head, belly fins and side fins with three deft cuts, and when the head is removed the entrails come with it. You next cut out the vent, flop your fish, and cut deep down on each side his dorsal, and yank that out too. No need to do it, as you'd get the fin when you split him; but it's force of habit. Now you wash him, scrape off the slime that remains, wipe him dry with your "fish towel," split him in halves and remove his spine, and he is ready.

A Wind-Break is Desirable Sometimes, Especially for Baking

And he's enough, being larger than the first one caught.

Now what can you do with the other? Maybe one of the farm boys will see your fire to-night and come visiting; if so, you will give him the bass. Just the same you hope nobody comes; a small bass wasted is not so bad as to have your lone camp stunt broken into.

Back to the macaroni! It is doing nicely, you find; good thing you didn't let it boil too hard or it would be stuck fast to the bottom of the pot by now. You stir it and set it where it will boil harder. Then, after turning the potatoes over and raking more hot ashes over them, you get out the can of soup—and everything else you need. Time's getting short now, and you want to be ready to "wade through it." Before proceeding with the soup, however, you make your tea, in your cup, taking the water from the boiling pot. That leaves the right amount for liquidating the contents of the can, which you attend to right quickly: The smell of something more smellable than boiled macaroni is just about due. Macaroni's coming on all right, though. In about fifteen minutes you'll strain off the water, add butter and the grated cheese out of the little friction-top can you have it in, cook till the cheese melts, and . . .

When the Dust Settles. — Too busy to think, you get to whistling, and first thing you know you are sitting cross-legged on your sweater, with the "supper things" spread all around you, and your mouth so full of soup and broiled bass and baked potato and macaroni that you can't "taste the taste."

It has been a full day. But now comes the lonesome time. You admit you would like to discuss the fishing. The quail have been whistling in the field near by at the

edge of the woods, and with them for company you never would feel lonesome, you think. But now with the evening chill drawing on, the bird voices of the day are silenced. You get to thinking about the birds, and what a desolate world it would be without them, and how impossible, too, considering how the bugs would multiply. And as if to emphasize this point, a militant mosquito simultaneously punctures your reverie and your skin and brings you back to camp.

You resolve to rig a screen over the head of your bed, using the square of cheesecloth you brought for the purpose, and find there are other things to be done also. You need some more wood, the supper things must be cleared away, dishes washed, water brought from the spring.

Time To Think. — Comes the dusk, and with your sweater buttoned around you because of the growing coolness, your hat on to keep the mosquitoes from biting your scalp in the part of your hair and your leggings on to protect your ankles, you sit on your bed under your cozy little lean-to poking a small camp-fire made with some of the willow left from your raft making. You might make a smudge, but the mosquitoes are not bad enough for that. And what good is a smudge, anyhow? You're glad there are no midges; they are the limit!

The night-hawks are out, beating the air-lanes for their supper, uttering their strident "*Peent*" and once in a while booming down their aerial toboggan slides. Why they do this spectacular stunt you cannot imagine, any more than you can figure out how in the world they can make a meal out of mosquitoes. Another thing that bothers you is to know why the night-hawk spends so

much time hunting high in the air, and bothers with mosquitoes, when its brunette cousin, the whip-poor-will, hunts near the ground and gets away with all sorts of fat bugs.

You, however, are the only human night-hawk in the vicinity. Nobody comes to your camp; even the mosquitoes are diffident. You think awhile of the men like Nessmuk who struck out alone through the Michigan wilderness, and travelling by the compass came out at the place they wanted to reach, after a couple of weeks hiking where there were no trails. And you admit it took nerve.

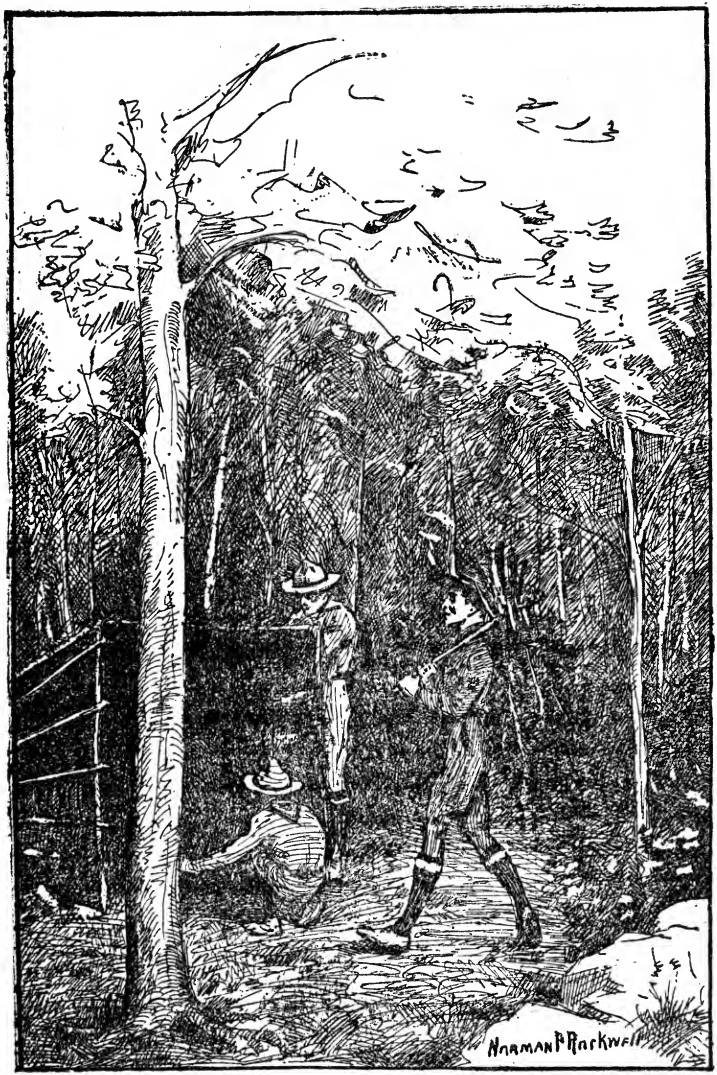
Finally, you get up and walk around a bit, and stretch your legs. How dark it is outside the circle of light from the camp-fire. You walk down to the lake, and there sit down on the clean sand of the beach. It is only a little lake in the daytime, but now its mystery is boundless. The moon has not yet risen. The woods around you and across the lake shut out the world; there is not a single twinkle of light visible except the stars above and your fire back at camp. The only definite sound you hear is the calling of a distant whip-poor-will. The illusion of being entirely alone in a wilderness is perfect.

The far worlds in the sky claim your interest, as they always will under such circumstances. And with a bound your thoughts are off to revel in the gorgeous, hopeful dreams of youth. From solitude in a farmland wood lot, you are transported to the high places of the world, and wander among them with transcendent faith.

* * * * *

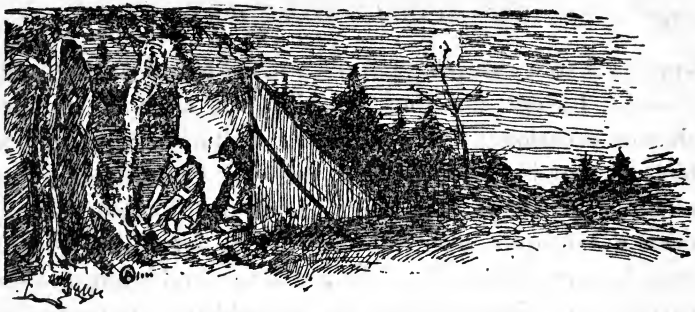
Camping experiences all have to conclude. This one I shall leave to you to bring to a close in your own way, and

in your own good time. I have no wish to break in our reverie with prosaic and trite reminders. Stay with your stars! When you get older, if you sometime connect them in your thoughts with that of the *rinsing* I was talking about, you may know your first camping-alone trip was a complete success.



THE WOODCRAFT PATROL MAKE CAMP

Building a brush lean-to of real balsam boughs



Lean-To Cheer and Comfort

CHAPTER X

AUTUMN WINDS

FALL is the finest time of the year for hikes, in most parts of the United States. In some sections, of course, other seasons are better; like civilization, it is a matter of geography. In the Rocky Mountain country anywhere north of the 40th parallel, no one would attempt to camp for pleasure in the high places except in mid-summer. In the spring there would be too much difficulty getting "in," and too much danger from snow slides; in the fall the hazard of being snowed in by a sudden storm would be too great. In Canadian woodlands, generally, except lower Ontario, and in the wilder ranges of our own woodlands, the black-fly, the mosquito, and the midge, one or all, are apt to be disagreeably attentive in spring and summer. For a trip such as I shall describe, therefore, which is a little more ambitious than the usual Boy Scout hike, the fall will generally be the best time.

In the Golden State. — From the first of May until Jack Frost comes marching down from the north, California's woodlands constitute what is perhaps the nearest

approach to a camper's paradise to be found on this continent. Except for the possibility of a short thunder shower occasionally in the higher altitudes (above 5,000 feet), a tent is not needed for shelter. Campers on hikes, afoot or otherwise, generally "sleep out," often without even a tarpaulin over their blankets, depending on the trees to keep off the dew. And as for general interest to the nature lover, the woodlands of the Golden State cannot be surpassed. Nor do they lack appreciation. Public camps are scattered profusely through the mountains, and of course private camps are to be seen in all sorts of unexpected places. There are a great many mountain stores that cater entirely to the summer population. Naturally in such an atmosphere, and with such opportunities, the California Boy Scout is a pretty well experienced and enthusiastic camper. And so, I have chosen a California patrol of Scouts to make the hike in this chapter.

* * * * *

An Election Day Hike. — It is the morning of Election Day, a Thursday. The Daniel Boone patrol of the best (they are all the best) San Francisco troop, eight in number, all members of the same high school, have been excused from school on Friday and are off on a three days' hike to Tomales Bay, a round trip tramp of forty miles. The fall rains will soon put a damper on hikes; already the summer-parched verdure is being replaced, as the result of a preliminary shower or two. "One more hike" has been the watchword for a fortnight. And now it is a reality. The Scouts met on the 8:15 boat, which took them across the Golden Gate to Sausalito, of the hanging gardens, where

they took the train to Mill Valley, fifty minutes from San Francisco. Other hikers in plenty there were that came on the same boat and train, for they are the beginning and the end of the schedule of the Sierra Club members on their hikes of a day to Mt. Tamalpais and vicinity. The Scouts attracted little attention on the way over; every one expected they were bound for Tamalpais, the mecca of most hikers who go to Mill Valley, which is the last stop on the line. On the way up the Tamalpais road and trail from the station the Scouts dropped well to the rear, careful not to rush the start of their long hike. Now at the fork of the trail, at West Point, 2,200 feet above their starting point, a young fellow with a pair of big yellow boots and a little bit of a rucksack, containing perhaps his lunch and his camera, seeing them turning the "wrong way" calls back officiously:

"Hey, where are you Boy Scouts going?"

Eyes are turned and there are some good-natured grown-up grins, until the Scouts' Patrol Leader, turning his head but not deigning to stop, answers with a touch of curtness:

"Tomales Bay."

Instantly a patter of hand-clapping breaks out. "Are you going to ride back, boys?" asks a veteran, pleasantly.

"No, sir," replies the the Patrol Leader. "We'll hike it. We're taking three days."

"Good for you! And good luck."

Going It Alone. — And away go the Scouts, at last by themselves and glad of it; for a Scout likes as well as the next fellow to go his own way. All is quiet along their bobbing file for several minutes, and then up speaks "Coffy" (whose name is Coffin):

"That fellow thought you were off the trail, Breeks, but he didn't say it. You cut him kind of short, don't you think?"

"Sure," replies the Patrol Leader, whose real name, by the way, does not begin with a B. "Save your breath when you're pushing a pack up a mountain."

"But Number 5!" persists Coffy.

"Aw, cut it out, Coffy!" calls a voice from the rear. "You're stepping on your foot. Save Number 5 for somebody that deserves it."

"Yes, Coffy, try it on some of your high-school teachers."

"Grand-stand," says a third, and the outburst subsides.

Trail-Side Repartee. — It is not easy to carry on a conversation with some one ahead of you or behind you on a narrow trail. Moreover, lugging a twenty-five pound pack over the Tomales Bay trail is no picnic. The Daniel Boones swing along silently, nursing their energy. Every Scout is bound he isn't going to be the one to lag or have to be relieved of his pack, or to be such a duffer as to sprain an ankle. There will be a regular ten minutes' halt every half hour now the climb up the slope of Mt. Tamalpais is to the rear. During the first of these there is a round of sober-voiced conversation, but no complaint or inquiries come to the Patrol Leader, who prides himself on having set a good, safe pace.

"How are the feet?" he asks, finally.

No answer.

"Excuse me," says he.

"Must have been dreaming you were out in Muir Woods with the Crocketts, weren't you?" asks "Brother Squire," named for Daniel Boone's brother.

"Guess so."

"How soon do we hit the Ridge?" asks some one.

"Noon," replies Breeks. "Why?"

"I was wondering how much you figure on doing to-day."

"Twelve miles, and we'll cover more than half of it by noon."

"Why, we've come almost six miles already; we're way past Tamalpais," speaks up the Pedometer.

"Well, what time do you think it is? We left the Valley at five after nine," parries the Patrol Leader. And the Pedometer bethinks himself to look.

"Holy smoke!" exclaims that now thoroughly amazed individual. "Say, I *wondered* what was the matter with my stomach. What time do you call noon?"

"When we get there. Come on! Hike!" And the long-shanked Breeks is up and away. It isn't so much the matter of covering more than half the day's journey before dinner that he cares about, but that he wants to reach a certain place where he can sit with his back against a certain tree acquaintance of his and view some hundreds of square miles of the blue Pacific while he eats his dinner. He is a fastidious leader, is Breeks, on top of being a popular one. Incidentally, he has held his patrol back a half hour over his allowance of three hours to reach Bolinas Ridge. A careful, canny fellow, Breeks, for his seventeen years.

And in due course of time, under this efficient guidance, the patrol swing into the camp-site Breeks has been heading for, everybody in good shape and crowding to the front. Fires are lighted, kettles boiled, grub disappears, sundry long sighs of satisfaction arise, and eventually having had

his fill of looking at his ocean, Breeks also arises, and again says "Hike!"

It is not a road, only a trail, that runs the fourteen miles along the Bolinas Ridge to Tomales Bay, in Marin County, California. But such a trail! Think of hiking along the crest of a ridge forested with almost primeval redwoods, that begins a couple of thousand feet above the nearby ocean and slopes gradually to tide level at your destination, fourteen miles away, giving you an almost continual series of wonderful panoramas to view as you go along. It is doubtful if a more wildly picturesque trail exists so close to a great city anywhere else in this country.

The Patrol Leader's Penalty. — Breeks is the only member of his patrol who has been over the trail before, and is constantly questioned as to the various points of especial interest:

"How far to where the Lagunitas enters Mill Creek?" "Could we get down to the Lagunitas if we tried?" "Could we get down to the ocean, Breeks?" "Doesn't anybody live out here at all?" "How long until we can get some more water?" "Hey, Breeks, *how* much do you weigh?" "Breeks, *didn't* you say there are lots of deer in these woods?"

And, finally, somewhat worn, Breeks leads them to their camp-ground for the night.

"Hey, Breeks, where shall we put our tent?" ask the two Tenderfeet of the patrol.

"Where do we get water, Breeks?" calls out somebody else.

Whereupon the much tried Breeks drops his pack, throws down his hat, mops his perspiring face, and, after attracting

general attention by other dramatic display, addresses himself to the blue top of a stately sempervirens, a hundred and fifty feet above him, and in tones calculated to be well heard:

"If you want any information, now's your chance. I'm the walking encyclopædia of the Pacific Coast and I'd rather answer questions than eat. But I'm a member of the Question Mark Union and work only eight hours a day. Rest of the time I spend catching my breath and getting the cotton out of my throat. I'm at your service for just one more minute."

That effectually settles the pestering Scouts, and the wiley Breeks, with a triumphant gleam in his eye and pretending not to see the sheepish grins of his Scouts, unmuzzles his axe and strides away for his tent poles.

The Patrol Camp. — There are four tarpaulin tents (see Chapter VII) for the eight Scouts, and it is the order of Breeks that they be pitched as lean-tos. There is a lively skirmish to find good locations, until the Patrol Leader, returning with his poles, settles the matter with the command to pitch all four tents in a row, facing a big rock alongside the trail.

"But that puts us right in the trail," some one objects; a remark which brings a storm of derisive hoots.

"Who's going to be out automobile riding on this trail to-night, anyway?" demands the Pedometer. "Say, I'll bet if it was a wagon road Breeks would camp us right in it."

"That's exactly what I would do," says the Patrol Leader, straightening up from cutting tent-pegs. "And I would have a good, practical reason for doing it."

"What's that?" asks "Scuff," his assistant, always alert

for information. "Never mind that stripe on my arm now, Breeks; cough it up."

"Driest and warmest place to sleep," says Breeks, in a grudging tone, but in reality glad to pass the information along. "Bare ground has much less moisture in the top crust than that covered with sod. A road, being packed hard, and perhaps turnpiked to boot, has still less. If the sun gets at it during the day — and I'd pick a place where it did — it will radiate heat. It is safe to lie right on a road or on a deep bed of dry sand, but otherwise slee ing on the ground is dangerous."

"Suppose somebody comes along the road," remarks Coffy.

"I belong to the union," replies Breeks, and again retreats to his work in triumph.

Working in pairs, the Scouts soon have their four tents pitched, with underneath a stretcher-tick stuffed with dry pine straw for each of them. As they cannot guy their tent out in front, the Tenderfeet have some difficulty until Scuff shows them how to brace their upright forked poles with others propped from the rear (see Chapter VII). Breeks knows well that the night will be damp and chill, with ocean fogs doubtless drifting through in clouds. Hence the tents face the east, and snuggle close to the broad face of the up-tilted rock. As dusk settles down, four supper fires gleam merrily, and Breeks, walking down the line with an eye to lending a hand or making a helpful suggestion, finds everybody silently and earnestly ministering to the inner Scout. "Well," says he to Scuff on his return, "they're all putting it away." And he proceeds to do likewise.

Supper with Breeks. — You might think that, considering Breeks is the son of one of the proprietors of one of San Francisco's largest retail groceries he must have a more than ordinarily interesting supply of rations. And you might be surprised to learn that the only concessions he has made to his opportunitites have been to bring a couple of 4-oz. cans of egg powder (desiccated eggs, 40 cents a 4-oz. can or $1.30 a pound) for scrambling or making omelettes, and equal to two dozen fresh eggs; a couple of cans ($2\frac{3}{4}$ x 3 inch) of dehydrated soup, good for a quart each, and a generous supply of milk chocolate in $\frac{1}{4}$-oz. cubes. His other supplies consist of prepared flour — which he prefers because it simplifies recipes and saves labour — dried beans, rice, bacon, a beefsteak, evaporated apricots, seedless raisins, evaporated cream, tea, salt, crisco, butter and fresh bread. The surplus of egg powder and of milk chocolate are for distribution, and as for the beans — well, let us wait and see what he does with them. Meantime, here is what he cooked for supper, Scuff acting as cookee, rustling wood and water:

Bean Soup
Scrambled eggs with fried bacon
Baked potatoes
Boiled rice and raisins
Fresh bread and butter
Tea

Some Recipes. — He is a generous if matter-of-fact cook, is Breeks, and Scuff gladly gives him full sway. Incidentally, he is acquiring an education in cooking. It goes something like this:

SCUFF: "Seems to me I've got more cornmeal than we

can possibly use, with all the stuff you've brought. Let's have corn cakes when the bread's gone. How are they made, Breeks?"

BREEKS: "For us two —— Say, hand me the spoon there, will you? Why for corn cakes for us you'd take ½ pint of cornmeal, ½ pint of white flour — the prepared kind like I've got will do, but I'm giving the recipe with plain flour — ⅛ pint of sugar, 1 teaspoonful of salt, 1 heaping teaspoonful of baking powder, and 2 teaspoonfuls of lard or crisco. I prefer the latter. Mix it up well, rubbing the grease into the flour and meal with your spoon. Add about ½ pint of milk and water, and mix till you have a batter. Use a spoon to measure the batter out in drop cakes in your pan. You can bake a half dozen at a time in your bread-pan, using your frying-pan upside down as a cover. You need to be kind of foxy about your fire and not set your pan on the coals, but on hot ashes, with the coals piled around it and on top of the frying-pan."

"Thanks," says Scuff, putting away notebook and pencil.

Again, as to-night:

SCUFF: "How the dickens do you make scrambled eggs out of that powdered stuff?"

BREEKS: "Look on the can, you dummy."

SCUFF: "Oh! Well, how about the powdered soup?"

BREEKS: "Say, do you object to looking on more than one can?"

SCUFF (undismayed): "And how about those citric acid tablets? Directions on the can, too, I suppose, if you've got the original can. You happen to have yours in a tin box that says 'Assorted Cotter Pins' on it. Do you use them to flavour your soup or to make orange marmalade?"

BREEKS (savagely): "One in a cup of water makes lemonade. You'll need some, too, the way you eat up the bacon."

SCUFF (still persistent): "What do you mean by that? We've got plenty."

BREEKS (mollified): "Oh, not that. The acid is good to counteract the effects of too much grease."

Around the Camp-Fire.—Supper over and dishes washed, the Scouts congregate around Breeks's fire. All cannot sit on the bed, facing the fire, so a rope is stretched and a blanket hung to windward, and in the shelter of this the late comers range themselves.

"Everybody got plenty of night-wood?" asks Breeks.

No reply, meaning everybody has. The two Tenderfeet take advantage of the silence to assure each other that the big rock reflects the heat of the fire to beat the band, and that a properly pitched shed tent which faces such a rock close at hand—six feet from the fore-stick of the fire—and catches the heat thus reflected, and in its turn reflects it down on the campers' beds, is about the coziest place out of doors.

"Where do we camp to-morrow-night?" asks Coffy, more to give voice to the feeling that information has been withheld from him than from a desire to know.

"Right here," answers Breeks.

"What for?" from the Pedometer.

"It's a good place, isn't it?" asks Breeks.

"Yes, but suppose we don't get here," says another. "How far is it, Breeks?"

"About sixteen miles."

"Holy smoke!" "Gee whiz!" "My poor sacred aunt!" "My poor suffering back!"

"Don't you think we should have gone farther, Breeks?" asks the elder Tenderfoot.

"Why, didn't you get enough?" asks Breeks.

"Sure. I'm sore all over except my feet."

"Can't we cache some of our stuff to-morrow?" asks Scuff.

"Cache it? What's the matter with leaving it right here?" from Breeks. "Nobody will disturb it. We will carry our pack-sacks with our lunch, and cache everything we are afraid of leaving but do not want to carry. Just the same as leaving camp for a day if we were in permanent camp here. That's what's on the docket for to-morrow."

"Oh!" "I see!" "That's the idea!" "Great head!" "Camp already made for us when we get back!" "Oh, you Breeks!"

And Breeks nonchalantly hunts up his digger and commences to excavate a bean-hole.

A Reflector for the Camp-Fire. A Big Log or a Rock Is Better.

The Bean-Hole. — Beds are made down, fires built up, night-wood stacked handy, and the bean-hole inspected. Breeks is gone with his candle lantern, and to the amazement of all returns with a cast-iron bean-pot, or Dutch oven, of generous proportions.

"Where the dickens did you find that?" asks Coffy.

"Right where I cached it," replies Breeks.

"Gee! did you lug that all the way out here?"

"Not guilty. It came out here on a burro a couple of years ago, I guess. It is the common property of all hikers who know where to find it. And needless to say, it is taken care of, and returned to its cache after being used. Fellows,

there'll be hot baked beans ready for us when we hit camp to-morrow night."

"Horay!" "Ho-o-ray!" "Oh, you Breeks!" "Come on, fellows: One, two —— "

"Dan-yul Boone!
Dan-yul Boone!
Foller old Breeks
To the top o' th' moon!"

"How do you bake them, Breeks?" asks a Tenderfoot.

"To-night I will put the beans to soak in water; they have been picked over and washed. The first thing in the morning I will put them in cold water in which I have put a little baking soda, say less than half a teaspoonful, and put them on to boil for half an hour. In a separate pot I will parboil a hunk of pork, say about a pound to a quart of beans. I have to skim the water in the bean-pot once in a while, as there is a scum forms that spoils their taste somewhat if it is not removed. Then I will cut the pork in halves, chuck a piece of it in the bean-pot, strain the water off the beans, pour them in, put in the rest of the pork, salt and pepper — level teaspoonful of salt and lots of pepper — dump in a little sugar, say about a tablespoonful, pour in enough water to cover the beans, and put on the lid. Meanwhile I will have had a hot hardwood fire going over and in the bean-hole here, which you see is lined with stones. I'll make a cob-house of the wood, right over the hole. By the time the beans are ready it will have burned down to ashes. I'll make a pair of tongs with a bent green stick and pick out any stubs that haven't burned, and any big coals. I'll stick the pot in and cover the lid over with coals

and ashes, and on top of all I'll throw dirt enough to hold the heat, say a couple of inches deep. And when we get back here to-morrow night I'll know what to do with my share of those beans!"

The Patrol Leader. — By ones and twos the Scouts slip away to their tents. Fires are replenished, there are a few sleepy calls back and forth, and in a surprisingly short time Breeks, Patrol Leader, with the down of seventeen summers on his chin, but a fatherly manner about him, nevertheless, stands alone in his camp, like the sea captain who is last to leave his ship, last to turn in. He knows that he must be the first to turn out in the morning, too, and first on the trail all the day: not that he has any particular desire to be always in the lead, but because it is his place. He is the "old man" of his party, and in stern reality he carries quite a bit of responsibility on his square young shoulders. He is not thinking of this, however, but of his Scouts, and how they will stand the long hike of the morrow. Also, there is a big wind bellowing in the tree-tops, drowning the roar of the distant ocean surf, which but an hour before was distinctly audible. Now he turns soberly to his tent, and from his manner we guess that he is not too sure about what may be brewing in cloudland. From what we have seen of him, we know that, come what may, he is prepared. And so we will wish him a silent and respectful Good-night, Breeks; and good luck!

Every Road Leads Somewhere

CHAPTER XI

ROUGH WEATHER

TO MY notion the woods are never more interesting than when you cannot get through them except on snowshoes. And I will say much the same of the open country, except the level plains. To me the big, smoothly rounded hills of the prairie country of some parts of Minnesota suggest nothing so strongly as their adaptability for ski-ing. But snowshoeing and ski-ing are for the purposes of Boy Scouts practically confined to Canada and the bordering States. And I want this chapter to interest boys everywhere in winter hikes, for they are in many ways the best hikes.

To start with let us consider the winter hike from the viewpoint of the average Boy Scout troop living, let us say, in Omaha, which is pretty close to the geographical centre of this country. Most live troops like to start the new year with a hike, and our Omaha troop is as much alive as any. So the whole troop is out for the day.

A Troop Hike in Nebraska. — It is a keen morning, about 15 degrees above zero, and the Scouts are all pretty well upholstered, their thin khaki uniform trousers in many

cases worn like overalls, over their trousers. Some have found it a good stunt to wear their shorts under their long trousers; others prefer two pairs of drawers, in some cases the "top" pair being the knee-length cotton drawers of summer. Sweaters and vests are in general use, the former in some cases worn over the Scout coat. There are as many caps as there are hats. Some wear neck-scarfs, the hat-wearers ear-muffs. And the predominating choice in hand covering is heavy gauntlet gloves of black jute velure, faced with leather. Quite a few have overshoes, or arctics, that buckle high above their ankles; some are wearing high-laced boots. The ground is frozen hard and there is about an inch of newly fallen snow. Light west wind, sky overcast. The old-fashioned army haversack, in most cases altered to be carried as a pack-sack, is the favourite carrier for grub and utensils.

They are piling out of an interurban trolley car at Childs Crossing, after a "ten-cent ride" via South Omaha, and are bound for Childs Point, on the bank of the Missouri, where they have a cabin. Soon they are strung out in column of twos, marching "route step" and making their Scout Master hustle, which prompts him to blow his whistle and instruct the right guide to set a more moderate pace. "You'll work up a sweat, and then when you get to the shack and stand around you'll get chilled," he warns. And he is right. Furthermore, he is right when, before allowing them to "break ranks" at the cabin, he tells them to take off their scarfs and sweaters as soon as they "fall out."

He knows they will immediately fall to chopping and carrying wood, and romping all over the place. And he knows from experience that it has to be a mighty cold day

that requires a fellow to be bundled up while moving around briskly or chopping in the shelter of the woods.

The New Year's Dinner. — These Omaha Scouts have a few large cooking utensils in their cabin, and a big range; each has brought cup, plate, knife, fork, and spoon. There is to be a common mess instead of individual cooking, and the supplies have been purchased by the troop quartermaster, with troop funds supplied by the treasurer. Most of these have been distributed among the Scouts, and are delivered immediately the command to fall out is given. The New Year's dinner being an important feature of the day's programme, a volunteer detail of cookees commences operations at once, under the direction of the Chief Scout Cook, there being a deal of washing and paring and mixing necessary in the preparation of a feast for forty hungry Scouts. And these Scouts certainly will be hungry, having breakfasted early in order to carry out a prearranged plan of helping others to have a happy New Year before starting on their hike.

No, there are not any turkeys to roast. In the first place, the Scouts prefer to share their "turkey money" with people less fortunate than themselves, and, in the second place, the nearest approach to roast turkey their cooking facilities permit is chicken stew! With the aid of a couple of wash-boilers and an outdoor fire, however, it is going to be "sure some stew." Dumplings in it? You bet! And in addition there will be mashed potatoes (mashed with milk), mashed turnips, creamed green peas (canned) with carrots, hot biscuits, fresh bread and butter, celery, stuffed olives, English plum pudding (the real thing, properly steamed) with spice sauce, coffee, tea, and milk.

Sounds pretty good, doesn't it? But the best thing of it is the Scout Master does not have to bother his head about its preparation. His office for the day is but that of disciplinarian; the programme has been entirely arranged by the Scouts and will be carried out by them.

Getting Together. — What this programme is, how much chicken stew there is left over, what time the troop starts back to the city, etc., is of no particular interest. It may be assumed our Omaha Scouts are as well able to have a rousing good time as any other Scouts, once they get together, and with a good dinner and good shelter may do extra well. The point to make is that they *are* together; that they have prepared for their good time and are carrying it out regardless of cold weather, snowy ground, and dreary sky. And what better way to start the new year? Finally, those who do not already know it probably will learn before the day is over that a light jersey worn underneath a khaki Scout coat is warmer, especially out in the wind, than a heavy sweater worn over the coat; and it does not wrinkle the coat. Also that a light-weight woollen undershirt with a gym or a bathing shirt over it is warmer than a heavy undershirt, and more comfortable than two light undershirts, because giving more freedom to the arms. Still further, that a Scout should never wear a scarf or a "turtle neck" sweater, but accustom himself to the cold, throat troubles very often arising from a "raw" throat caused by a chill resulting from removing a scarf or turning down a sweater collar to cool off when overheated.

The winter hike of Southern troops is about the same as any fall hike, and as we have discussed a patrol hike in the

fall in the previous chapter, we will now take a short turn into the woods of the "Frozen North."

Snowshoe Hikes. — Winter hiking is at its best in woods carpeted with two or three feet of snow, or even more, and the ice frozen solid on lake and stream. It is then that the ugly in nature — if nature ever is ugly — becomes beautiful, and the beautiful sublime. And it is then that the trail may run anywhere, so long as the going is not too steep, the trees too thick, or the rocks too big. You walk right on top of the bramble thickets. The impassable marsh of summer invites you to tread it where you will, and view the woods from new angles. The lake in the wilderness, which has never known a boat save the Indian's canoe of birch bark, and which in summer you could not visit because of the black-flies and mosquitoes and the impassable tangles of swamp and muskeg, now promises that you may not only reach it, but may walk all over it — this, of course, providing you live on the edge of the backwoods, or can afford the time and expense of getting there.

To most of us who do any snowshoeing in the woods, winter hiking is apt to mean either a day's trip in comparatively "tame" woods or a visit of two or three days to some cabin used at other seasons for a fishing or hunting rendezvous. Such hikes as the latter are generally made at a time to include the Washington's Birthday holiday, when the snow is packed hard and snowshoeing consequently least laborious. Few Boy Scouts are so fortunate as to make such journeys, and it might be thought they must confine themselves to the single day's hike near home. This may be so in most cases. But what about the Scout shanty?

The Scout Shanty. — Well, maybe it *is* a real log cabin. That sounds more dignified. Up in the Ontario bush — the real backwoods — they would call it a shanty. And, somehow, I have always associated the log cabin with the Southern negro, and thought of it as being made of hewn logs, chinked with clay and having a stone chimney, the roof pitched fairly steep and made of shakes. So it is, too. If that is the kind of woods headquarters you have, all right. But I'm thinking that Scouts who live where snowshoes can be used must naturally build the Northern shanty, round logs, stovepipe "chimney" (best of zinc with a cap on it), squat roof and all. Whatever it is, it probably will accommodate a patrol at least for a night. And thus the overnight snowshoe hike at its best becomes possible.

To rig up a small shanty to "sleep" six or eight Scouts, build a double tier of bunks around the walls. These should be boxed around to contain hay or browse for the beds, the deeper the better. Cover such beds with a doubled blanket — horse blanket still better, and best of all a jute velure automobile rug with the rubberized drill side down. In a winter camp you need almost as much bedclothing under you as on top of you, and under that a *bed*, not a stretcher. If you want to congeal the marrow in every bone in your body, try sleeping on a stretcher or a pneumatic mattress in an atmosphere of zero.

A stove you must have, of course, unless you have a cabin with a fireplace. A collapsible stove of sheet steel weighing about eighteen pounds and costing between five and six dollars will warm a good tight 9 x 14 shanty in any weather, but of course it requires rather constant feeding. I have seen such a stove made of cast-off calcium carbide

cans (oblong), and a good one it was, too. The bottom should be raised off the floor on stones, and filled to the depth of a couple of inches with gravel. A sheet of asbestos on the floor underneath will be a wise precaution. For night-wood burn hickory, birch (any kind), white ash, or ironwood. You want wood that will make a hot yet lasting fire. I have generally used either yellow or canoe birch.

Camping Out. — As for camping out in zero weather — excuse me. I have done it, at first for the fun of it and after that when I had to. No woodsman will use a tent in midwinter if he can get into something more substantial. Try it if you like; it will be a valuable experience and a good adventure, and certainly will tax your camping skill and your enthusiasm — also your axemanship! Use your tarpaulin tent, pitched in shed-tent fashion. And take along the biggest and best axe you can find. You want a $3\frac{1}{2}$-pound head at least, and the wedge is the best shape; remember that. Build a regular shed frame of poles, such as you would make for a brush lean-to, spread your tarp on this, and cover with fir boughs. You'll be warmer for the extra thickness of your roof, and your tarp will be protected from the sparks you will send aloft with your big fire. If in a milder climate, use a stout wall tent, pitched *taut* on a frame of poles, and have a board floor. Bank around the outside with evergreen boughs or leaves held down by poles. You need a spark arrester on any stovepipe used with a tent.

If I were taking a patrol of Scouts on a zero hike with the intention of camping over one or two nights I would want to camp close to a good big cordwood pile and have an understanding with the owner that he was to be paid for as

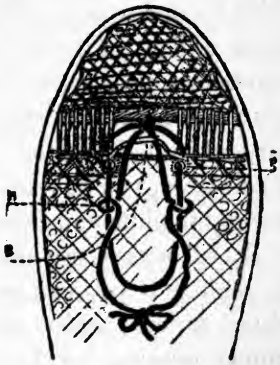
much of it as we used. Under such circumstances I could figure on a good time.

For suggestions as to clothing for such hikes, see Chapter III. You cannot improve upon the woodsman's dress. Leave overcoats at home; an overcoat is made to *ride* in. If you can get a heavy mackinaw shirt, by all means take it in preference to a sweater; and wear it with the tails outside your trousers. It will turn wind, snow, and rain. Sleep in underwear, top shirt, and two pairs of socks. You may be glad to wear trousers and sweater. Have a knitted skating cap with you and wear it as a night-cap. I prefer such a cap for general cold weather use. Being of wool and knitted loosely, it never becomes disagreeably damp with perspiration. A bandana handkerchief tied loosely around the neck (but not in the fashion affected by the tinhorn cowboys of the stage and the magazine illustrations, with the knot to the rear) will serve to keep snow off the trees from getting down your neck.

About Snowshoes. — Snowshoes? Use the kind the lumbermen or other practical woodsmen in your vicinity use. Conditions vary, and the best snowshoes to suit will generally be found where needed. I prefer the Algonquin model, with fine webbing, the toe of which is only slightly turned up and is shaped like that shown in the accompanying diagram. Size 12 x 40 is right for a boy, 14 x 40 suitable for a man. Select a model having a short tail, not more than 8 inches. There is nothing difficult about learning to walk on snowshoes. Everybody takes a tumble once in a while in the woods, but this is usually caused by tripping over a looped brier or a snag of some sort.

Do not buy a pair of snowshoes having a harness to

buckle over the toes and around the heel. This kind of snowshoe binding is known among woodsmen as a tenderfoot rig. It is too stiff, consequently apt to freeze the toes. Moreover, it does not permit of enough freedom of the foot and prevents you twisting free from the shoe in event of a fall — something that may be very necessary. Once in jumping down off a steep creek bank to snow-covered ice I broke through into deep water. Only a small hole was made, and I was out in a jiffy — all but my snowshoes, which caught under the ice and held me as in a trap, face downward on the ice. By twisting my feet out of the toe holes of the snowshoes, as I always do instead of untying the bindings, I was soon able to turn around and sit up, and eventually worked my snowshoes free. I could easily have kicked them off entirely, but of course I did not want to have the current carry them under the ice. Had they been buckled on my feet with the tenderfoot harness I would have been in an awkward fix.



How to Make the Algonquin Snowshoe Binding. P, Post-Hole: B, Bridle; H, half hitch.

The Best Binding. — For your bindings, get two yards of $\frac{3}{4}$-inch lamp wicking, and for bridles half a yard of 1-inch calfskin. To rig a snowshoe, first lace the bridle into the webbing on each side of the toe hole (see diagram), leaving it just slack enough to allow you to insert your three fingers on edge between it and the webbing, where your foot is to go. Take a yard of the lamp wicking and, with an end in each hand, pass them *downward* through the

post-holes, leaving the loop shown in the diagram. Bring the ends up as shown, and pass the left *under* the bridle and over to the right side; pass the right one under the left *in front of the bridle*, draw it up *on top of the bridle*, and pass on to the left side (see diagram). Now place the foot on the shoe, toe under the bridle just far enough so same lies across the root of the great toe, and draw the ends of the binding up so the loop rests comfortably on the heel. You of course now hold in your right hand the end that was passed through the left post-hole, and vice versa. Make a half hitch from the *outside*, around the loop which rests on the heel, at each side of the ball of the foot, draw up and tie over the heel. Do not draw the binding so tight as to force the toe too far under the bridle, or the heel of the shoe will kick up at every step. By stepping on the shoe with the other foot, and twisting around sideways the foot you wish to free, you should be just able to work the toe out from under the bridle. This is how you will take your snowshoes off without untying the bindings; to put them on you will simply reverse the operation. Work the knot around so it lies at the side of the heel, so it will not chafe. Remember, you have to step on the snowshoe with one foot to hold it while you twist the other loose.

By all means use soft, smoke-tanned moccasins of real moosehide if you can get them. They are much the best. Your second choice should be smoke-tanned buckskin. Smoke tanning, by the way, prevents the leather drying to parchment-like stiffness after being wet. Oil-tanned beef-hide moccasins will freeze stiff and hard and chafe your feet at heel and toe. Have socks of different sizes, and of course wear the smallest next the foot. If your socks wrinkle

over your toes, as they surely will if all the same size, you are apt to find bloody toes when you remove the socks to find out what's hurting you. And don't think you can improve on the lamp-wick binding or the method of tying it I have described.

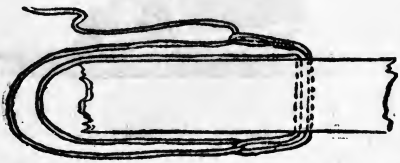
Hikes on Ski. — Ski-ing properly belongs to the open country, and of course it far outpasses snowshoeing as a sport if there are hills to slide down. In ski-ing country a good ski-runner can cover a lot of ground (or snow) in a day, and there is no more enjoyable way of making a scouting hike. The amount of territory covered naturally depends upon the hills and the condition of the snow; wet snow is the bane of the ski club. It is only through shooting down a hill occasionally that a ski-runner can outdistance a snowshoer; for on the level the fellow on the webs is on about equal terms with him, and going uphill he has the advantage.

The Huitfeldt Ski Binding with Heel Thong Instead of Buckled Strap

The simple broad leather strap across the toe which is the common binding supplied on most ski of moderate price is an abomination. Only the ski-runner trained from boyhood can really handle a pair of ski (not "skis" or "skees") with such bindings. And then it is a matter of skill such as is displayed by the horseback rider who can ride "hippo-

The Ellefsen Ski Binding. The Black Section is Rubber Belting. An Excellent Binding, but Expensive, and Apt to Chafe the Heels Unless the Boots Fit Perfectly.

drome" fashion, or standing on the horse's back. The best bindings I have used are the Huitfeldt and the Ellefsen models. Although at present using the latter and more expensive model, I unhesitatingly recommend the former as the best all-around binding I know of for Boy Scouts to use. It can be procured from a number of different ski manufacturers, and lately I notice the better stores are using it as regular equipment instead of the good-for-little leather strap. I recommend that it be used with a thong rather than with buckled straps. This gives much the same effect as the snowshoe binding I have described. This thong you can make of belt lacing. If you cannot obtain the toe-irons any blacksmith will make them for you. They should be cut out of a piece of $\frac{3}{16}$-inch wrought iron, $2\frac{1}{2} \times 2\frac{1}{2}$ in. extreme dimensions. The bolts should be $\frac{3}{16}$-inch, have round screw head and be $3\frac{7}{8}$ inches long; use a washer at each end of each bolt. The diagrams show how the binding thong is tied. For a bridle use a strap $1\frac{1}{2}$ inches broad in the middle and tapering at the buckling ends, run through the iron toe-pieces and buckled as shown. Adjust the iron toe-pieces so as to prevent the foot being pushed forward too far: The bridle should cross the foot at the root of the great toe. Wear heavy shoes; those who recommend shoepacs or oil-tanned moccasins never have been on ski; you need the stiff sole. Put a round-headed screw in each heel to hold the thong up.



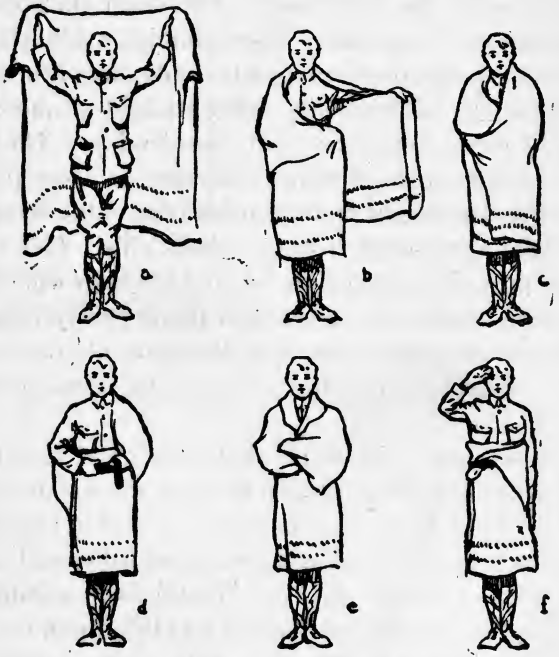
How to Rig the Thong for the Huitfeldt Binding

Handling Your Ski. — Your ski when stood on end should

be as long as you can reach with your hand above your head, but no longer. If they are too long you will be unable to make the kick turn with them. To do this, kick high, twist the heel in and toe out, way round; set the foot down with the front of the ski pointing to your rear and quickly turn and follow with the other foot. Two short ski poles are better than one long one. When running a hill, the feet should be close together, one a little in advance of the other, the knee of the advanced leg being straight or almost so, while that of the rear leg is bent considerably. The body should incline well forward. Steering is acomplished by throwing the weight on the outside edge of the ski on the side to which you want to turn. And spills! Pick a soft spot and pray that at least one of your bindings will slip off at the heel. Better have the heel thong pretty loose for running hills, at least. You may lose some of your lateral control of the ski thereby, but you may also save a sprained ankle.

Fun on the Ice. — Hikes on skates are great fun if you can find a creek or river running through the woods. Some of the best fun I have ever had was on such a creek that froze when it was in flood and then subsided considerably, leaving the ice in all sorts of up-and-down conditions. There was about a quart er of an inch of light snow on it, so tracks were interesting. We found the trails of mink and raccoon here and there, running from tree to tree, or into some dark hole among the roots of a windfall. And to cap the climax, we followed for a long way some unknown skater who had fallen repeatedly, sweeping a great smooch of snow off the ice, and found when we caught up with him that he was short sighted and could not see the places

where the snow-covered ice suddenly started up or down. For a good many years I swore by the long racing skates, and next to them would have chosen the hockey model; but now I think the rocker best for general use. Don't try to carry a heavy pack; you may sprain an ankle.



How to Wear a Blanket as an Overcoat. It Must be Secured at the Waist with a Belt

The winter hike has many charms and benefits which not even the roughest of weather can dim or detract from. Rough weather! what is rough weather anyhow? To my notion cold and storm are rough on one only when it is necessary to ride or to stand. If I can hike, the

only weather that is rough on me is the murky close kind, with humidity, mosquitoes, a dead calm, a heavy pack and a muddy trail all trying at once to land a knock-out punch on me. And speaking of riding and of standing around, let me suggest that when you *need* the overcoat that no woodsman carries on a hike, your blanket will serve you much better than most overcoats would. Instead of telling you in so many words how to wear it Indian fashion, I have shown one of my Scouts, and then had him pose for a series of pictures. Neat blankets worn like this look well, and if every Scout in the patrol or troop adopts this suggestion you will have uniform overcoats. To protect the blanket from snow or rain, don't wear it; wear your tarpaulin instead. (See Chapter VII.) On a cold ride, the blanket and tent combined, with the tent outside, will be found as warm as a big fur coat.

In the Land of "Been-There"

CHAPTER XII

EXPLORATION

DANIEL BOONE, America's greatest scout and pioneer hero, was a surveyor, and because of that fact was of inestimable service to his country where, had he not possessed his small knowledge of civil engineering, he might have lived and died in comparative obscurity. He was not only able to lead parties into the wilderness, but could make accurate maps, and so preserve in concrete form the information obtained on his trips. He not only knew how to measure the width of a stream or a lake as the Boy Scout manuals describe, but he could *survey*. His maps, rough though they were, never were based on guesswork. Instruments? He doubtless never carried them on his exploring trips; but he knew the tricks of the profession.

Measuring Distances with a Wheel. — When I was a boy my father used to talk about the great Livingstone and about "Chinese" Gordon. The former was my favourite, although the redoubtable Gordon was the most praised by my father, who was always a soldier at heart. I got to reading the big "histories" that fired my father's

imagination, and liked best the books by Livingstone. A feature about them that interested me greatly was the accuracy with which he described everything. Finally, I found among other things that he had used a counter on one of the wheels of an ox-cart and so measured the distances he travelled. That set me to measuring distances in a similar way. I tied a bit of white rag around one of the wheels of the buggy and by counting the number of times it went around as I walked the horse, measured the distance from our front gate to the house. We always had said it was "a quarter of a mile," but I found that it was in fact only 380 yards, or 60 yards less than estimated.

I became interested, and my father, who had employed surveyors, showed me how to measure distances with a right-angled triangle, which he made for me of planed lath (Fig. 1). He mounted it on the end of a 4-foot section of a broken fork handle, by means of a screw, and when he had sharpened the staff stuck it in the ground; see Figure 2. He explained to me that the proportions of this triangle, 12 x 12 x 17 inches, would always make a true right-angled isosceles triangle. You may forget the name, as I did, but remember the dimensions.

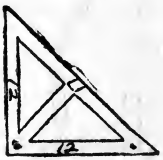


Fig. 1. — How to Make a Right Angle Isosceles Triangle.

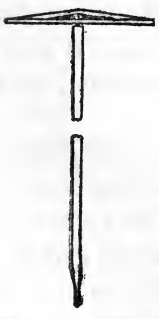


Fig. 2.—The "Settler's Jackstaff"

Using A "Settler's Jackstaff." — If you wish to measure the distance of an air line across a river, lake, impassable swamp or other place where you cannot go, set up such a "settler's jackstaff," as he called it, as at *a*, Figure 3. Put a pin in the point of the corner *z*, and another 4 inches from

it toward *x*. Sight along these pins from *x* to *z* and train them on the inaccessible point *c*. Now, without moving the triangle sight over two pins similarly placed, from *x* to *y*; this will give you the bearing of a right angle, and you should have a companion set up stakes, as indicated by 1, 2, 3, to carry it out. Pull up your jackstaff, plant a stake with a red flag of some sort in the hole left by the staff, and proceed along the line of stakes 1, 2, 3, When you reach a point where the line *y z* of your triangle will sight exactly at the inaccessible point *c*, as shown at *b*, you have but to measure the distance from *a* to *b*. The distance from *a* to *c* will be exactly the same. If you want to know how far it is from *b* to *c*, it is to the distance from *b* to *a* as 17 is to 12; figure it out, it's easy.

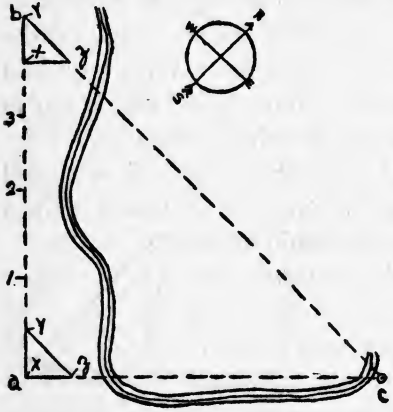


Fig. 3.—Range Finding by the Right Angle System

Now, to measure the distance to other inaccessible points, as *n*, *p*, *s*, Figure 4, take the *x z* right-angle bearing of each from your base line *a b* and plant a stake, then proceed along the base line until, with the jackstaff set up and the right angle *y x* aligned on the base line, the line *y z* of your jackstaff triangle is sighted at each of these inaccessible points. See diagram. The distance from *m* to *n* is the same as from *m* to *o*, and so on. Thus from a base line on one side of a lake you can plot the other side, as shown,

the intermediate shore line of course being sketched in on your map by guesswork. By taking lots of pains you can plot every bit of it.

Of course there are better systems, but I am giving this one as I believe it will help you to understand others to follow, as it helped me.

Making a Surveying Outfit. — By far the most popular system of quick and simple surveying in this country is called "plane tabling," and gets its name from the use of a plane table. To make a serviceable plane table, get a small drawing board, not less than 12 x 17, and preferably 24 x 24, if you can get it. Turn this face downward and find the exact centre. Now get an ordinary camera tripod, made of wood and having a *wide* top, 4 or 5 inches in diameter if you can get it. Procure a view camera screw-socket and countersink and fasten it securely in the exact centre of the under side of the drawing board. You need a socket for a view camera, because they are the strongest; any camera dealer can obtain one for you. Get a carpenter's small plumb and some cord to make a plumb line.

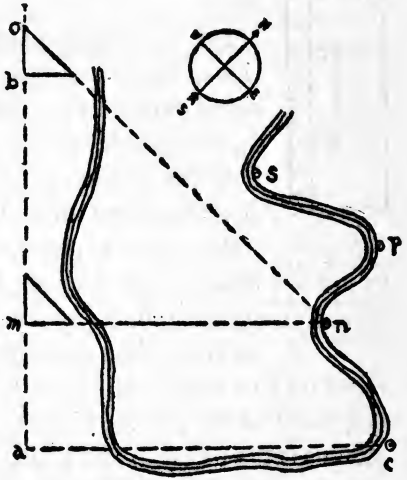


Fig. 4.—Finding the Range of Other Points, to Map the Lake

Next you need a straight yardstick, for an alidade. Not the cheap article given away as an advertisement,

but one of hardwood. If you can get one with a ruling edge so much the better. For intersection work with the plane table this yardstick requires only the addition of a couple of sights. By making one of these a "peep" sight, however, you can also do traversing.

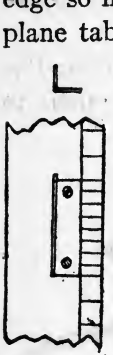


Fig. 5.—How to Make the Knife-Blade Sight and Mount on the Alidade

For the "knife-blade" sight, cut a piece of right-angled brass to 1 inch long, by $\frac{1}{4}$ inch each other dimension. Drill holes and mount on the 15-inch mark, so the vertical section is in the centre of the rule and in precise alignment with it. For the peep sight, take a piece of brass 1 x $1\frac{1}{4}$ inches, and cut a $\frac{1}{2}$ x $\frac{1}{2}$-inch hole squarely in it, leaving $\frac{1}{4}$ inch of brass on three sides and $\frac{1}{2}$ inch on the other. Bend up to a right angle so when the $\frac{1}{2}$-inch base is secured on the yardstick the hole in the vertical section will be exactly $\frac{1}{2}$ x $\frac{1}{2}$ inch with its bottom margin formed by the base. Mount on the 30-inch mark, and cut off the remaining 6 inches.

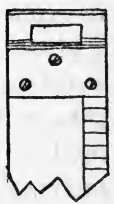


Fig. 6.—How Make the Peep Sight of the Alidade

Now you have an alidade which, although not up to a surveyor's telescope will serve your purposes. It is not like any other alidade I know of, but I have found it practical, and it has the advantage that it will stand handling.

Surveying By Intersection. — To plot an irregularly fenced field such as is indicated in Figure 7 by the line 1, 2, 3, etc., to 12, by intersection, proceed as follows:

Set tripod at *a*, fasten plane table on it, with a piece of drawing paper thereon, held by thumb tacks. Make a mark for *a* on the paper, and another 3 inches from it for *b*,

and draw the base line through them. Now measure off 150 yards, with a tape or by pacing it off, in a straight line from *a* in the direction you want the base line to run. Plant a stake there; it represents *b* on your plane table. Place your alidade on the table so the scale is along the line from *a* to *b* on your paper, and the peep sight toward you. Sight through the peep and over the knife-blade at the stake *b*. A red flag on the stake will help. When the sights are aligned your pencil line *a b* will also point straight

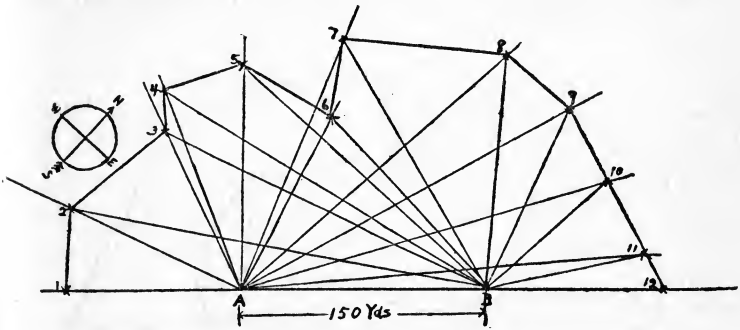


Fig. 7. — Surveying by Intersection

from you to the stake. Tighten the thumb-screw so the table cannot be moved.

Now your assistant goes to where the fence starts at 1, turns and goes out to the corner 2. Don't move the table. Sight the alidade at him, peep sight to your eye, across the top of the table, the scale side resting on the mark *a*. Draw the line from *a* to 2. You cannot tell how far away he is, so carry the line out indefinitely. Continue in this manner until your assistant is at 12. He should plant a stake exactly where he stands at each point.

Take your plumb and hold it as near as you can so it

hangs directly below the mark *a* on your map. (Directly under the tripod is good enough; I hang the plumb on the thumb-screw.) Mark the spot on the ground. Move the tripod and drive a flag stake in this marked spot.

Range Finding Lines.— Go to the stake at *b* and erect the table. Swing table around, and with the alidade train it so the line *b a* on your map runs directly toward the stake you left behind you at *a*. The mark *b* on your map should be directly above the hole where the stake *b* was planted. Tighten the thumbscrew so the table will not turn.

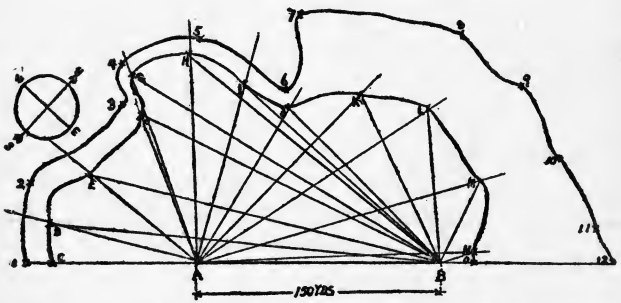


Fig. 8. — Surveying Two Lines from One Base Line

Signal your assistant to start back over the course he has staked. When he stops at 11, sight the alidade at him, peep sight at your eye and scale side against the mark *b* on your map. Draw the line *b* 11. Continue until your assistant has gathered all his stakes and you have drawn your last line, *b* 2.

Draw the line of the fence from 1 around to 12. Now, as your scale is 50 yards to 1 inch, if you will measure off the distances between the points 1, 2, 3, etc., you will find the total length of the fence is 587 yards 1½ feet.

Suppose now that instead of a fence we have surveyed the far side of a river, from a base line in a field, as shown in Figure 8. The base line *a b* and that represented by the figures up to 12 are the same. To plot the near side of the river, you proceed as before, sighting the alidade on your assistant at the points *d*, *e*, *f*, etc., from the base line point *a*, then reversing from the base line point *b*.

Simple, isn't it? Don't forget to always put the compass directions on every map you make. To get it, place your compass on the map when the plane table is locked at *a* or *b*, or take the directions from the sun.

The Traversing System. — Traversing permits surveying a road, trail or any line you wish to run, as you go along. Provide yourself with two assistants, and each of them with a stadia rod, of planed pine, $\frac{3}{4}$ x 4 inches x 6 feet. For long distance work it will be better to have a 1 x 8-inch board. Paint the board with a priming coat and let dry. Cut a stencil out of 4 x 20-inch cardboard, mark the board with a pencil in the regular stadia design, and paint alternately, red and white; see Figure 9. A telescope enables a surveyor to use a light pole.

Fig. 9. How to Paint the Stadia Board.

You will note that the vertical bar of the design connects 3 horizontal bars, which are square, or 4 x 4 inches. Each of these horizontal bars, whether white or red, represents 20 feet, and the group of 3 (in reality 5, 3 of one colour and 2 of the other) represents 100 feet.

To survey a road with plane table, alidade, and stadias, set the table up and mark the compass directions and the starting point, *a*, Figure 10. Send an assistant with his

stadia rod to the corner *b*. Let him hold the rod erect. Sight at it across the table with the alidade, this time *with the peep sight farthest from your eye.* The scale should lie against your starting mark *a*. Your yardstick is now serving in the place of the telescope on a surveyor's transit. You can see just 5 of the horizontal bars or blocks (3 red and 2 white) in the little $\frac{1}{2}$-inch square front sight (the peep) of your alidade. That means your assistant is just 100 feet from you. The principle is 40 x 30 ÷ 12 = 100. Draw a line along the scale from *a*, $2\frac{1}{2}$ inches, or $\frac{1}{2}$ inch for

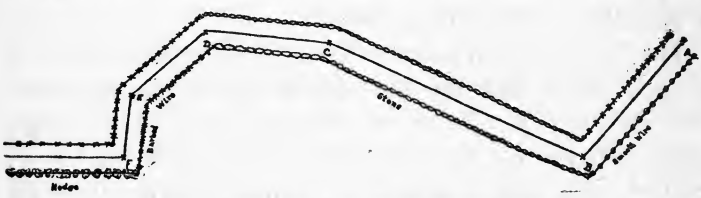


Fig. 10. — Surveying a Road by the Traversing System

each block, and make the mark *b*. The scale of your map will be 1 inch to 40 feet. Have your assistant mark where the stadia rod stood and go on, you following with the plane table, your other assistant remaining behind with his stadia rod standing on the mark you made directly beneath the mark *a* on your table, after finding the proper location with the plumb. Set your table up and plumb so your mark *b* is directly over the mark on the ground left by assistant No. 1, and with the alidade (any end that comes handy) placed along the line *b a* sight back to assistant No. 2. Align and tighten thumbscrew so table will not turn.

Meantime, assistant No. 1 has taken up a new position at the next bend in the road. Lay the alidade with the

scale touching *b* and sight as in the first place, with the peep sight farthest from your eye. You can count 9 squares of the stadia rod in the ½-inch square of the peep sight. That means the stadia rod is 180 feet away from you. Draw a line from *b* 4½ inches, and make the mark *c*.

Repeat the previous operation, continuing until bearings have been taken at *c*, *d*, etc., to *g*, and you will have the skeleton of the road. If at the same time you have sketched in details, landmarks, trees, a bit of fence here and there, and made notes on the margin, you can fill out your map when you get home. And you will have an accurate map.

The Best Compass. — Surveying with compass, protractor and tape is both laborious and complicated. They teach it to the Scouts in England, having them trundle a measuring wheel. I think the use of the stadia, so much practised in this country, far superior. If interested in compass surveying, get a civil engineer to show you a real surveyor's box compass, with a floating dial, a hair sight and a throw-off lever to raise the needle off the pivot when it is not in use. Set your heart on that sort of compass, and when you get it, get it big, not less than 3 inches in diameter. Meantime, I advise you to bone up on geometry, as the indications are that you're going to be a civil engineer.

Sketching. — For sketching, use quadrille ruled paper pads, and to obtain a fairly accurate skeleton by following the intersection or two-point system (so named because the angles from one base line point intersect those of the other at the point of aim with the alidade) I have described, pace off a base line, and use your sketching pad as a plane

table and a pocket rule for an alidade. In traversing, pace the distances instead of using stadia rods; all that is required is to follow the plane-tabling principles as to taking bearings and marking them on your maps. For range finding by the right-angled triangle principle, if you ever wish to use it draw a 3 x 3 x 4½ inch triangle on a sheet of sketching paper, and sight it by placing your pocket rule (folded) along the line to be sighted. You will have some difficulty improvising a support for your pad in using it as a plane table; that will give you a chance to exercise your resourcefulness. But don't overtax yourself and these principles by trying too difficult a job of surveying. Stick to fairly level country and leave steep mountains and deep gorges to the fellows who can sign C. E. after their names.

Peary on Amateur Exploration. — Surveying, of course, is by no means all of amateur exploration. By far the biggest thing about it, I think, is the fact that it leads you into all sorts of interesting corners right around home that you never have imagined existed. That is the really worth while thing: to know one's own stamping ground. Commander (now Rear-Admiral) Robert E. Peary said to me on the day he sailed on his successful North Pole expedition: "I have no sympathy for the tourist, who travels guide-book in hand, searching out everything that is old; who has seen the midnight sun yet cannot point out the North Star. I do not honour the man who has climbed the Pyramids and yet has never been over the hills in sight of his own door-yard. I believe in the man who likes to get off the beaten track and steer his own course, just as I have more regard for the boy who has climbed a bee-tree that nobody else ever suspected was a bee-tree than for the boy

who has climbed the Statue of Liberty and defaced the good bronze with his initials." And I think every Boy Scout will echo these sentiments, coming as they do from our greatest explorer, who, by the way, started on his career as an explorer in the capacity of a civil engineer in the United States Navy.

The Modern "Great Unknown." — In addition to making maps, an explorer if alone makes notes and collections of the flora and the fauna (the vegetable and the animal life) of the country, and collects samples of the minerals. Exploring parties nowadays generally have from one to several trained scientists for each division of the work, and of course there is not much of the world left to explore. Everything considered, it might safely be said that not one in several hundred thousands of the boys of to-day will ever even set foot upon unexplored land. And not many more will ever see virgin country, untouched by the plough, the axe or the miner's pick. That does not leave much incentive to a boy to learn how to explore, one might say. But one might also find equal lack of incentive in a surprising number of other directions. Meantime, what about the little wildernesses of our own neighbourhoods, which taken collectively constitute a Great Unknown of tremendous proportions? Admitting we have explored the far corners of the globe and that there is small hope for a boy to ever find anything new, doesn't he in fact owe it to himself and to his country to first of all know his own home surroundings? The fact of the matter is: every Boy Scout should aspire to know his own "native heath," and know it well. Just imagine, for instance, some strange hunter coming to the cabin home of the Boones, back there on the

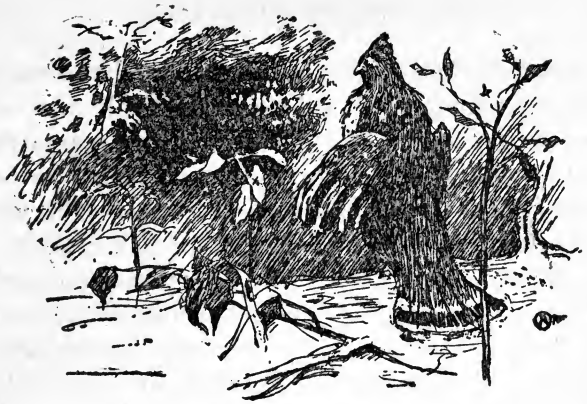
Yadkin at Holman's Ford, N. C., and asking young Daniel about the neighbourhood. Do you suppose there might have been any question that Daniel could not answer? For a further example: do you suppose Daniel Boone in later years, in Kentucky, ever met a man from Holman's Ford who could tell him anything he didn't know about his old home surroundings? Finally, how would you like it if a strange Scout should come to your neighbourhood, and after a few days scouting in the woods and fields should tell you more about the lay of the land than you could possibly tell him? It would be rather embarrassing, to say the least.

Exploration Near Home. — Exploration near home is the best kind of practice to enable you to get the most enjoyment out of any trips you may make into strange territory, as on long hikes, at the annual encampment or when visiting another Scout at some distant place. When you grow up, the experience will be of value on every vacation trip into the woods and will advance you in your work if you turn to civil engineering, mining engineering, forestry or any such pursuit. The confidence it will instil in you if you do more than to dabble at it, will go a long way toward relieving you of the fear of getting lost — a fear which besets almost every lone woods traveller sooner or later, and not infrequently becomes a panic as deadly as that which drowns so many good swimmers. The practice in taking bearings, range finding, reading a compass, following directions, is bound to be of much value to you in the woods or on the prairies or the plains, regardless of your knowledge as to your location. And if you ever do become really lost in wild country, this training may save your life.

The Eternal Wilderness. — I shall discuss the subject of how not to get lost, and what to do if you ever do seriously lose your way, in following chapters. And so, to conclude, I wish to ask you if you realize that the whole world is a wilderness. Perhaps you do not. But it is just that. You can see conclusive evidence of it on every vacant lot, in every deserted garden, every tumbledown house. Let man step aside for just a little while and the grim old wilderness sets to work immediately to reclaim its own. Owners of real estate say a house "goes to pieces" quickly if untenanted. Farms, roads, every bit of land must be combed and shorn with regularity or become a jungle. Man must wage a constant fight to keep the wilderness down. At best he only succeeds in covering it with a thin veneer through which the eternal Green Legion spring up at every opportunity, and always will. It has taken many centuries to conquer the wilderness to this extent that there are to-day few unexplored places on the earth. And it has taken men, the best men of all times, best of all of whom have been explorers, the men who have gone ahead and told us where to build our cities. Shall we rest upon our oars now and let the explorer pass with his day, as have passed other good men and true? Can we keep the wilderness down — or will there come a day when it shall arise again, even as it arose in ancient Rome? Who can tell? Deep thoughts for boys, I'm thinking. But — what do the Boy Scouts say to keeping alive the spirit of exploration? Shall we "be prepared" for our old enemy — yes, our oldest enemy — the wilderness, as well as for other things?

A SURE-ENOUGH SANTA CLAUS

An Idaho patrol on ski bring good cheer to a lonely settler's cabin



The Drumless Drummer

CHAPTER XIII

WOODCRAFT

MUCH that is discussed in other chapters of this book classifies properly as woodcraft; in fact, almost the entire book might be said to be devoted to the subject. True woodcraft, the possession of which distinguishes the genuine woodsman, is what we have to deal with here.

I think woodcraft in the highest sense is more an instinct than an art. I have known intelligent men who had been in the woods most of their lives yet were but poor woodsmen. To excel in it one must have aptitude and knack, just as in horsemanship, bicycle riding or shooting. I do not call it woodcraft to exercise ordinary horse sense about things in the woods, although paradoxically that is what it amounts to. There is a cunning that distinguishes your real woodcraftsman, and it is difficult to describe. Some say the characteristic that marks every good woodsman is his power

of observation. Perhaps it is. But to me he seems more *wild* than anything else. I don't mean a wild man in any of the ordinary senses, of which at least two opposites will occur to you. I mean wild in the sense that to me he seems to fit into the woods as a part of them. This may be an odd fancy. Nevertheless, I think many Boy Scouts will agree with me that a deer or a wild turkey, any game animal or bird, looks distinctly wild, from its protective colouration to its furtive movements and its lithe symmetry, not excluding even bruin in his fur overcoat, and that it is quite possible to conceive of a man having similar qualities.

A Last Leatherstocking. — When I was a boy on the farm, there was such a fellow who lived in our neighbourhood. I was fascinated the first time I saw him. He was a stealthy, taciturn, inconspicuous sort of an individual whom I never saw anywhere but in the woods and then seldom knew he was about until he stood beside me. He was a neighbourhood ne'er-do-well, although in every way respectable and not addicted to liquor; he was simply rated as "shiftless." This, I think, was because he did but little farm work, and less chopping, spending most of his time fishing or hunting, and always going alone. But you should have seen him in the woods! He was as light as a feather, as silent as a shadow. His movements were cat-like, and he was a nailing shot, as he proved at shooting matches. He doubtless knew a great deal about the woods and their wild life, but he kept it to himself if he did. And finally he vanished — went away, we learned, no doubt to some more fruitful hunting ground. Or perhaps he went to work.

This man was the last, and according to tradition, the cleverest of a number of his kind, some of them Indians,

who hunted the woods of that section after the country was settled. Inasmuch as my great grandfather and a companion were the first settlers, we knew the histories of all of them. And what do you suppose? This last Leatherstocking, the best of the lot, was a city-bred Englishman, only "six years over from the old country," as he told me the spring he left us. Where did he learn his woods wisdom? I think he "had it in him," at least a good deal of it. Perhaps he was a bit of a tinhorn, or "woods struck," like some of the "West struck" fellows we sometimes see here in the East, or the imitation cowboys that adorn the tourist visited places in the West. But he was able.

How to Build and Thatch a Brush Shelter After the Plan of the Old Indian Camp

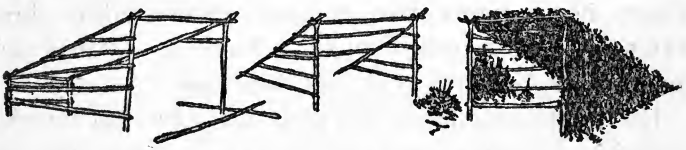
Real Woodsmen. — The only out-and-out woodsmen are quite naturally men who spend most of their time in the woods. The Northern Indian trappers and guides are among the best. Among the white men, forest rangers and fire wardens, trappers and timber cruisers, prospectors, guides, game wardens, settlers, lumbermen, some sportsmen, soldiers and field men in other branches of government service constitute the woodsmen of to-day. Thanks to the Boy Scout movement, there is good promise that there will not be any dearth of them for a long time to come. What do these men know that distinguishes them from the ordinary handy camper? More than I can begin to tell you. Perhaps most important of all, they know themselves.

By that I mean they are a well collected, steady, properly ballasted sort, not given to going off at half cock. That, really, is a first essential to becoming a woodsman. Equally important is to have what is called a good "bump of locality," or the faculty, instinct or whatever it is — by some called a "sense of direction" — which guides one in strange places where there are no street- or road-signs and no one to ask which way to go. I admit that observation may in fact constitute a large part of what passes for this, and some shrewd judges are inclined to give it all the credit.

The Sense of Direction. — Horace Kephart, a friend of mine who has devoted the best years of his life to woods life, says in his excellent book, "Camping and Woodcraft," that he does not believe any man is a born woodsman, and adds: "In the art of wilderness travel as in other things, some men are more adept than others who have had equal advantages, and a few possess almost uncanny powers, amounting to what we call genius. To my notion this means nothing more than that some individuals are quicker to observe than others, reason more surely from cause to effect, and keep their minds more alert; and I believe that this is far more due to their taking unusual interest in their surroundings than to any partiality of Mother Nature in distributing her gifts." But I contend for the inborn foundation. I do not think it possible for every willing, observant and eager young American who has the opportunity, to become an exceptionally good woodsman, no more than I believe it possible for every earnest, ambitious and observant boy to become a tight-rope walker. Some people on getting into a canoe for the first time are immediately at home in it, others are as awkward as the

proverbial hog on ice. For my part, I can explain this only in one way, and that is that some have a better sense of balance than others. Any number of other examples might be cited. And a study of phrenology will convince any one that the bump of locality is something more than a theory to be scoffed at.

I do not wish it to be thought that I would discourage ambition. My purpose is just the opposite. I want every Scout who reads this to find out what his natural ability is in this respect. For the sooner you realize that you are lacking in sense of direction the better for you. It will



How to Build and Thatch a Brush Lean-To

simply mean that you must make a greater effort to become proficient in finding your way in strange woods, be more observing. And certainly it is better to err on the side of taking unusual pains to always know the lay of the land than to some day have the misfortune of being lost as the result of neglecting to take more interest in your surroundings than a companion finds necessary. Realize once for all that it is a matter for every Scout to work out for himself, and if necessary take double the pains taken by your companions. You cannot observe too much, or too well.

Here comes in the difference in observation which Mr. Kephart says he thinks makes up the sum total of the difference in woodsmen. Let us take an example.

Where Observation Fails. — A black spruce swamp.

few and far between nowadays, is perhaps the most difficult to find one's way through of all the tangles of the North; though I've seen some cedar swamps that were bad enough. In the South the rhododendron laurel thickets (in the Appalachian Mountains), and the canebrakes are in their way equally puzzling at times. We will suppose that an uncommonly observing woodsman for some good reason has on a gray day entered any one of these three innocent looking man-traps, and finds himself without a compass and with the sun obscured by clouds. Now what? Where does his power of observation come to the fore now? Every black spruce tree or every rhododendron shrub looks just like the next one; as for the cane — "they ain't no diffrunce, nohow," as the lost darky said.

It is commonly known that most men when lost travel in a circle. I've done some circling myself, and so has Mr. Kephart, according to his letters. Very few men with much experience in the woods can truthfully say they have never been "turned around." The Indians of the North, and not a few white men brought up in the bush, practice diligently to overcome this peculiar tendency to "go round and round"; and they succeed. An old friend of mine, Mr. Thomas Reynolds, for many years in the employ of the Hudson's Bay Company in Canada, told me that in forty years in the bush he never knew of an Indian or a white bushman carrying a compass.

But what has come of our woodsman? He cannot climb up a rhododendron or the canes to get an outlook, nor will it do him much good to climb one of the small black spruce trees, for all the other trees are just about the same size as the biggest one he can find, and he could not get high

enough in its top to see over them. Perhaps he has practised at walking in a straight line. But has he ever practised it in the rhododendrons or the cane or in a black spruce swamp? It is not likely; generally a man picks a safer place. So how is he going to get out? Which way shall he go? Bless me! I don't know. Nor do I know how observation or reasoning from cause to effect is going to aid him. But I do hope for his own sake and the sake of his family that there is something in the theory that there is

Making a Lean-To of Corn-Stalks on a Frame of Poles

such a thing as a man having an inborn sense of direction, and that he has it good and plenty.

Getting There Without a Compass. — I have been badly mixed in a fog while coon hunting at night in the Mississippi River bottoms, and in a combination of snowstorm and spruce swamp in Quebec — aye, and in the heart of New York City, momentarily, on emerging from the subway. So I know from experience that this instinct of direction which some possess to a greater degree than common is by no means infallible. But I maintain that it does exist, and moreover that it is good company.

It may be accepted as a fact that a Scout is supposed to be able to find his way around in strange places without maps or directions. In the early days of this country, for example, a Scout on setting out for some distant point as likely as not could only guess what his route would be, having to pass through country entirely new to him and untravelled. He knew the general direction, and laid his course by the lay of the land, the sun and the stars. Strange rivers, lakes, swamps, canyons, might deflect him, gray days and black nights deprive him of his compass in the sky, the winds prove fickle, Indians chase him, but he went through, somehow, and came out at the place he had started for. He used woodcraft or plainscraft, or both, to keep him on his course, and also you may be sure there was many a long hour that he "followed his inclinations."

For other examples we might take the negro refugees of the slavery days who found their way from the South to Canada without the aid of the "underground railway," and the desperadoes chased pretty much all over the West by posses. But I have done enough if I have impressed upon you that there is something more to woodcraft than keeping your eyes open and using your thinking apparatus, authorities to the contrary notwithstanding. As for the authorities, I find on looking the matter up that Stewart Edward White believes as I do. In his book "Camp and Trail," he says a sense of direction is the "prime requisite for him who would become a true woodsman," and that "the faculty is largely developed of course, by much practise, but it must be inborn." My friend Edward Breck, in his book "The Way of the Woods," gives the Indians credit for "innate and practised sense of direction" but otherwise

does not commit himself. Nessmuk does not seem to mention the subject in "Woodcraft," but he evidently was always a user of the compass.

Innate Woods Confidence. — You cannot become a woodcraftsman simply by memorizing rules, learning the scientific names of trees, studying the stars and mastering the trick of finding the meridian by the sun. It takes something more than mere interest in your surroundings, much though you may feel; you must be in sympathy with the wilderness, have an innate understanding that makes you at home with nature. I might call it innate woods confidence.

The Compass on the Ground

This is something which I feel sure nearly every boy has to some extent. It is only through being crowded out by other interests, in things closer to hand, that it fails to appear in the make-up of so many men. And it is my purpose to influence you to recognize this sympathy while it is yet strong in you, and nurture it, that has led me to such length in this discussion. If you must give up some of your primitive instincts, hang on to this one.

Practical Observation. — Next, let everything that is out of the ordinary be your signal to stop, look, listen. Practise concentration; that is to say, form a habit of paying close attention to a few things. If looking for a spring, for example, let that be your search, and pay particular attention to nothing else but unusual things. It is by the unusual things that we recall a place in the woods where we have been before. And naturally, the more you know

about the woods the more unusual things you will observe. Then if you get turned around and cross your own trail, as you probably will, instead of seeing trees that "all look alike," you will find yourself saying, "Why, there is that same peculiar tree again; I must have walked in a circle."

One time my mother, coming on foot from the country post-office and making a short cut through the bush, noticed some young pigs rushing across her path. She knew they belonged to a neighbour and were in the habit of going home at night to be fed. But it was too early in the afternoon for them to be going home. It was evident to her that something had alarmed them. To many another less observant the pigs would have been merely running through the woods, for reasons known only to young pigs. She was reading a newspaper as she walked along, but the incident distracted her interest in it and she commenced to fold it up, meantime looking about her, when lo! a big Canada lynx that had crept up to her sprang away in alarm at the flourish and rattle of the paper. He had been after the pigs, and it may be, though rather doubtful, that he thought he saw better game. He squatted in the path and glared at her, and even screamed at her. But she rattled her newspaper and waved it at him some more, and thus scared him off.

Put Two and Two Together. — I tell you this incident because I know it will be remembered and it points a moral. The unusual things naturally attract your attention, and very often they have considerable meaning. The more observant you become, the more they will mean to you. Just as the pigs gave the alarm as I have described, other things will tell you what is afoot, how the land lies and so on. A red squirrel, a jay-bird, a marmot, may give you

knowledge of the presence of some supposed marauder, or may advertise you as such. The manner in which a couple of crows fly away from a distant treetop may indicate to you that they have been disturbed by some one under the trees near by. This you will know from the manner in which crows fly away when alarmed by you. If you hear the woodpeckers calling persistently you will know it is pretty apt to rain. A burr oak or mossy-cup oak tree growing on top of a ridge would interest you, and be remembered, because you know this species prefers low ground. A rotten log pulled to pieces by a bear after grubs, a sapling peeled by a moose, a bald eagle's nest in a loblolly pine, would fix the locality in your memory.

The Lay of the Land. — Thus from one thing to another you will progress, and soon from noticing unusual rocks, trees, sounds and the like, you will find yourself graduating to the class who do not bother particularly with small details, but are guided by the lay of the land. This in almost any woodland or forest, save a swamp or wide flat, should be your best ally in finding your way about. A woodsman going into strange country, no matter how wild, takes account of the direction the streams flow, and from that knows how the ridges, hills, or mountains must run. In the mountains he knows the trails are bound to follow the course of least resistance, and a brief survey from some lookout serves to tell him where to find them, if any exist. He does not intend to go hunting those trails; he determines where they are and goes to them. Of if following one that is obliterated most of the way, and is not spotted, perhaps running in open country, he keeps going, taking the course which he knows it naturally runs, and has the satisfaction

of cutting into it once in a while where unmistakable evidence of it remains.

Some Precautions. — It is not reasonable to expect that Boy Scouts will take the same hazards as hunters do, or go alone into what may prove dangerous country. But it is well to give some rules to be observed by a party of Scouts camping in wild forested country, so no member of the party may go astray.

On making camp, four trails should be blazed toward camp from the four points of the compass. These should extend out as far as there is any probability of any one straying, and each be blazed in some distinguishing way. This will not be a very big job, and will always be a guide back to camp when found. Let the entire party ascend some high point, if possible, near the camp, where a good outlook may be had. In some sections of the country this may not be practicable, but if not make an attempt to get an outlook from a tree, to which every Scout should climb and make a thorough observation. A map of the surrounding country should be made, if you have not already a satisfactory topographic map, and each member should copy it and carry his copy with him. With reference to this map, be sure that from it you fix in your mind, and in a notebook, the compass direction from camp of every prominent landmark. Pay particular attention to the streams and the

Crossed Sticks Held by a Stone: Take the Other Trail

The Chopped Stem of a Bent-Over Bush Points the Way from Camp. To Back-Trail, Look for the "Pale" Bushes, Easily Seen Because the Under Sides of the Leaves are Unusually Pale.

ridges separating them. Then when you go from camp in a given direction, count the streams and the ridges you cross, and *do not forget the count.* If there is any chance of forgetting, check each off in your notebook. If instead of crossing streams you stay on the ridges, keep track of the heads of the ravines. Each stream, each ridge, each ravine, gulch or arroya, is an infallible sign-post if you do not neglect to keep count of them. With this information, some attention to the compass, the wind, any prominent landmarks, and being convinced in your own mind that water always flows down hill, you ought to feel no concern about finding your way back to camp. As a further safeguard, however, I suggest that there be a rule against any member leaving camp alone, especially if there is probability of a storm, and that if for any reason whatever this rule be broken, the Scout must leave word in camp as to the time he leaves and where going. He should then keep careful track of how long he is out and as nearly as possible how far he goes. And, of course, he should never leave camp without his pack-sack, containing compass, map, first-aid can, waterproof match-box filled with vesta matches, rabbit wire (for snares), fish-line with split-shot sinkers and hooks, and emergency rations; which latter may be whatever he sees fit to carry. In canebrake or thicket country he should have a hunting horn. Other precautions may occur to you; there are plenty of them; so many, indeed, that by the time you got through with them it might be time to go home.

What to do when lost? *Sit down!*

If You Get Lost. — That is the very first thing, even if

you have to hunt a dry place to sit upon. It is time to think things over, mostly to think them over backward.

Sit right where you are, and calmly think. Think where you have been and what you have done, and think of the instructions you read in the chapter on Emergencies in this book, on what to do when lost.

I believe the most fruitful cause of getting lost, where a party are in the woods together, is the fact that when two or more are together one generally leads the way and the others are inclined to pay small heed to where they are going. There are pleasant things to talk and think about, and Bill is acting as guide. The party in general do not observe closely, and consequently do not acquire a good knowledge of their surroundings. Let one of those trailing the trusted Bill get separated from the party and he will be yelling and whistling for help in short order. If he is not heard he may get rattled, and then there are rough times ahead for him. If the party get lost it is because Bill has not been attending to business. "Don't talk to the motor man."

No matter if you are the last fellow in the line, and the crowd is making as much noise as a brass band, keep your eyes open and know where you go. Then if you fall behind and miss your way, you can always back-track to camp. And remember in this connection that it is often the case that "the longest way around is the shortest way home." Don't attempt the unknown short-cut but go back by the known long way. Don't forget!

Woodcraft a Character Trait. — True woodcraft cannot be learned from a book, no more than can axemanship. Experience and natural aptitude are the things that count.

Such suggestions as I have given will help. Other chapters contain information equally important, and that devoted to Useful Hints will be found to include a number of woodsmen's tricks well worth knowing. Get all the ideas you can, and then find out for yourself just how practical each one is as applied to your own requirements. You will find that, sifted down, woodcraft in all its senses is a character trait rather than an art, a truth to be grasped rather than skill to be acquired; that to become a true woodcraftsman you must grow to *be* a certain sort of man. A pretty good sort, according to the usual standards. In fact, I don't believe the world has ever produced a better.

Getting a Move On

CHAPTER XIV

EMERGENCIES

THE greatest hiking emergency is to be badly lost. Other risks pale into insignificance before it, even the risk of being mistaken for a deer by some fool hunter. Not that the danger is greater, but on account of the scare that goes with a real, grown-up case of being badly lost. I don't think anything could be more terrible than to literally run one's self to death in a panic.

A chopped foot, a broken bone, sunstroke, poisoning (toadstool, snake, gila monster, tarantula, ivy, or just plain ptomaine), a combination of deep water and acute indigestion, all sorts of calamities can happen to a Boy Scout. A belligerent papa bovine or a contentious "wood pussy" may furnish excitement, lots of it, and easy as you please. There are plenty of possibilities; one could string out a catalogue extending all the way from the runaway horse on the next block, out into the woods, and around the back way home to the mad dog under the veranda. To prescribe

a course of action for each would require a book in itself. And you wouldn't buy the book! There is one cardinal rule, however, which would properly be the first to observe in practically every emergency, and there is plenty of room for it here, and in your memory: *Keep cool!*

Lost and Alone. — To return to the subject of getting lost: a point to be borne in mind is that in the case of almost any other mishap you are pretty sure to have at least one other Scout with you. Somebody is within call, somebody will come along, or if not you can probably go for help. In the case of a water accident there is often the chance of rescue; or if not, the worst may be mercifully quick in arriving. But if you are seriously lost!

As I have said, it will be pretty ugly if you are *badly* lost. (There is a way to get lost neatly and with credit to yourself.) A crazy man lived for years with a farmer neighbour of ours who found him lost in the bush, demented from his experience. He was *badly* lost. He was not so far away from a settlement, but he was lost with a vengeance. And his panic robbed him for life of his reason. Another man in the same situation but nevertheless not *badly* lost might have fared far better, doubtless would have.

To take up the subject where it was dropped in the chapter on Woodcraft, if you find you are lost you will be scared a little, to say the least. *Sit down!* You are apt to get more scared. And that is a bad business. Remember it is panic that kills men lost in the woods. *Sit down!* Next, if at all late in the day, begin to think about making a bivouac for the night right where you are, or in the best place close by. Nothing very serious has happened. You have not suddenly been transported to some

other planet. If you sit down for a while and quietly look about you, you may even find that you are sitting right spang in the middle of the trail back to camp. It has happened more than once. True, the sun may be looking down at you out of the northwestern sky, and the little demons of panic may be hammering hard to be released from your brain to race through your veins. But it is a cinch that if you remain seated long enough the sun will go down, and you haven't seen anything in the papers about him giving up his regular setting place in the west sou'-west. In the meantime, as I said, you will probably spy some familiar object, or if not may realize that you can easily retrace your steps to the last unusual place or object you passed. And you are apt to tell yourself out loud what a chump you were for starting to get rattled.

What to Do. — If after a good rest you still are at sea, seek the nearest high point to secure an outlook. I've heard of a man lost for some hours in the cane who finally climbed a little basket-oak tree to which in his circling around he kept returning. And there within a few rods was his camp! Failing to see your way out, get busy making a comfortable camp and give any signals agreed upon. The proper signal to be given with a firearm when lost is one shot and then after a short pause (time enough to reload a shotgun) two shots in quick succession. This signal should be repeated at regular intervals, and is bound to attract attention if heard. It should also be used in case of accident. Smoke signals, if practicable, are best made with damp leaves or grass or rotten wood, put on a hot fire. The signals should be similar to those made with a gun, three separate columns of smoke or three big puffs

from one fire, made by holding a blanket or a coat over the smudge and lifting it, meaning "I am lost," or, "There has been an accident." Three blasts on the horn should mean the same. If your companions in camp are properly posted and hear or see your signals they will reply by repeating your signal, after which a single shot fired at regular intervals or a single, steady column of smoke will guide you to camp. You had better let them come and find you, and remember that a Scout does not mind ridicule.

Case of the Caddis Fly

Prepare for the Worst. — To be seriously lost in wild country is a calamity to be met with the utmost fortitude and good sense. Calmness should govern one's every action, if possible. Opportunities to kill bird or beast for food should be taken advantage of, for you do not know how badly you may need food before you find your way out or are rescued. I have mentioned the carrying of fish-line and hooks, and rabbit wire. You should know how to find bait for your hooks. The big white grubs found in a rotten log or stump will generally attract fish if skilfully offered. Also the larva of the stone fly, both the larva and the pupa of the caddis fly, the larva of the dragon fly, and the helgramite, dobson, or clipper. The value of the angle worm you well know, but it is not apt to be found when wanted. The larvæ of the stone fly are found under stones or sticks, hanging on

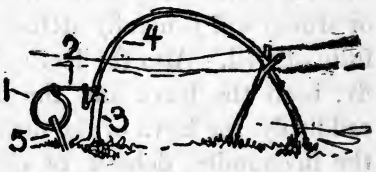
Larva (Left) and Pupa of the Caddis Fly

Larva of the Dragon Fly

for dear life. The "caddies" are found in their case, on the bottom of streams, on the gravel and on the sides of stones or under them. Trout eat them case and all, but it is best to pull the larva (grub) or pupa (worm) out and thread it on the hook. The larva of the dragon fly is found in swampy places and stagnant pond holes, sometimes under the surface, or, it may be, on the marsh vegetation above the water. The helgramite is found by turning over stones in the shallows of the stream; be quick, and take him from behind, or he'll pinch your fingers. Snails, grasshoppers, and of course minnows and meadow frogs, are also good bait.

The Helgramite

To snare rabbits, make your snare as shown in the illustration and set in a rabbit path or runway at night. Trim a small standing sapling (4), fasten a piece of the soft brass wire to the end, twist around a short trigger-stick (2), and make a noose (1). Cut a nearby sapling off, or drive a stake, and notch (3), hook the trigger-stick 2 in this notch, holding the sapling bent down. Fasten the noose erect in the split stick (5). A good way is to make a little lane of brush ending against a log or tree, place the loop or noose in this, and bait with some white-wood twigs or other food which rabbits like. Put one or two twigs in the lane, and the rest against the tree beyond the noose.



How to Make a Lost Man's Rabbit Snare

You may not approve of snaring rabbits, nor do I; but sportsmanship must step aside when a human life is at stake.

Save Your Resources. — Save your matches and your strength. If you are pretty sure you are only a short distance from the trail or from familiar ground, as you must be, the thing to do is to first of all make familiar the place where you are. Blaze a conspicuous tree on four sides, and write or burn any message you think of on these blazes. Don't use a cipher, as others besides your companions may have to search for you. Then start out with this for a central point and circle around it. But don't lose it. There's no need to lose it; if you do you are too rattled to trust yourself to travel and should *stop*! Just camp right there and wait for help. If, however, you find you can trust yourself, make several circles, each one larger, going *very slowly*, stopping frequently to look and listen, as if hunting a deer instead of your camp. Now you will remember why you should always notice particularly the unusual things and disregard the usual. For you will realize that an ordinary deer, with its protective colouration, is very hard to distinguish in the woods if standing perfectly still. How much easier to see a pure white one (there are such, called albinoes), or even to see one running. But the ordinary rocks and trees are neutral, all seemingly just alike, and all most emphatically still. It is only the unusual things that can possibly mean anything to you, and the "sign" you are looking for is as hard to see as a deer standing still.

Failing to get on familiar ground by circling, and of course being uncertain as to your location, having found no familiar landmarks in sight from your lookout (if one was climbed), you had best camp and wait. However, if you are bound to make a try at getting somewhere you must set

out to travel in a straight line. The place to use a compass is in camp, in a fog or a snowstorm, in a swamp or a canebrake and nowhere else; but get out your compass.

We must not forget that for some utterly amazing reason the sun is in the northwest. If it were night and you could see the stars the Big Dipper would be off on a tear in the southeast, no doubt. Travelling by a starline, except in open country, by the way, is feasible only in fiction. "All stars look alike" when you look at them through a canopy of thick treetops, even when the limbs are bare.

Travelling by the Compass. — Get out your compass (which you should never carry near knife or axe, or it will be demagnetized), set it down and let the needle "freeze." Twist it around so the north point is under the point of the needle — unless using a floating-dial compass, which is better — and take a good earnest look at what it tells you.

That compass is right. If you had two compasses, which is an excellent idea, you could prove it. Don't laugh; no less an old-timer than Emerson Hough says a lost man needs two compasses. Remember that it *always* points north. (Don't quibble about the magnetic pole.) It always points north, whether the streams flow uphill and the sun has gone visiting, or not.

North, south, east or west, you are not sure which way to go. Perhaps you came southwest from camp, then turned west, then northwest; that might place you directly west of camp. But you think you have circled; in fact you have circled good and plenty. But it is a certainty that you are not *east* of camp, isn't it? That eliminates half of the question. Shall you head north, south or east, or in any intermediate direction? That is up to you. If you have

any sense of direction now is the time to trot it out. I am taking for granted that the lay of the land tells you nothing; that it is flat anyhow, and you don't believe there is a stream within a hundred miles — except the one from which you just got a drink, which of course doesn't count, being a little stranger. Woodsmen are apt to follow downstream when lost, but you wouldn't follow *that* stream for a million, because it goes in the wrong direction.

Remember your map-making instruction, and sight over your compass at some distant tree. Now go straight to that tree. If you have to detour, pick out a tree behind you for a mark before you start. Arriving at your tree, look back and locate the tree you left, turn your back squarely to it and, looking ahead in the same direction, pick out another tree and go to it. Keep this up; if going to a tree without any deviation you can pick out another in line beyond it as you approach it. Check up once in awhile with your compass.

Making Detours.— A lake, marsh or bend in a river may interfere with you in travelling by the compass, making a long detour necessary. (Put away your compass as soon as landmarks appear.) Before starting around, pick out a landmark, preferably a prominent hill, or if there is none, then a conspicuous growth of trees, beyond lake, marsh or river bend, in line with the direction you wish to go, and let that be your guide in getting back on your line. In going around you may have to cross ravines, circle bayous, goodness knows what! Perhaps you may not get back on your line; indeed, you may find your line would lead you in impossible places. Very well; just make the proper allowance and take up a new line that will cut into your

original line at some certain point, head your course for there, and then once more take up your original course. Hold to your determination to keep to that one direction and that one line until you "get somewhere," and you will do it. If you keep going in one direction and compensate properly for any deviations, you are bound to. When contours disappear, use the compass.

Remember that little streams run to big ones, even when the fool things do run uphill, and that big ones generally have names and appear on maps; also that lakes do not fall out of the sky over night, but generally have names and appear on maps too. Furthermore, that roads, trails or portages have a habit of going to rivers and lakes, at least in a lumber region. By circling your newly discovered lake — unless it be a young Superior — or by going up or down a large stream, you are pretty sure to come to one of these roads, if you haven't already come across an old "snake trail" leading to the site of the one-time skidway right alongside of one. If it is a "driving" stream down which the lumbermen have run logs in times past you will find their dim trails along its banks.

By this time you should know where you are, at least approximately. But it is by no means a time for taking anything for granted; if, for that matter, you ever should when alone in strange forest. Now, if ever, it is time for you to recall Daniel Boone's advice, "Be sure you are right and then go ahead." You have come in a straight line and left a message behind you. Also you have blazed your trail. Don't neglect every precaution just because you have found a strange tote road.

Strange Roads and Trails. — On a tote road, the cordu-

roy logs in the low places or on the bridges will be worn the most on the side away from the logging camp. On a logging road, just the reverse. A tote road is used for hauling supplies to the camp, consequently the wear of sleigh runners and wagon wheels comes on the side of the corduroy logs that is away from camp. The logging road is used for hauling logs to sawmill or rollway, away from the camp, so the corduroy is worn most on the side toward the camp. In country where there are game trails, they will be found to run together at an angle in the direction leading to water, for obvious reasons. In the South the cattle trails run together in the same way. Any trail in wild country that has been used by man is almost sure to have been blazed. An old blazed trail is very difficult to follow, particularly if the man who spotted it cut through the bark, as in that case the sap exudes and heals the wound. But in the case of a trail so deeply worn as to be discovered "on the ground" it can be followed without the aid of the blazes. All you need to find them for is to learn from them which way the trail leads, and what sort of man made them.

Tree Blazes. Left, Trail from Camp; Centre, Trail Turns Right; Right, Trail to Camp

A trapper's line will lead you nowhere to your advantage. You will know it from its meanderings. A lumberman's line, if found, generally will be fresh or else accompanied by a logging road; for cruisers are not addicted to spotting trails except as a guide for the loggers. Such a trail will lead away from tote road, lake, river or skidway, to the site of a prospective logging job. The blazes will be on the side of the trees away from where the timber is to be cut,

or has been cut. Surveyor's lines invariably run straight; detours are made by right angles. They are spotted "fore and aft," or each tree on both sides, two blazes on a side.

Sit Down! — To conclude this long dissertation on a subject which I have said can be dismissed by two words, I will say that in looking through Mr. Kephart's book I find he gives credit to those same two words for getting him out of his difficulty the first time he was lost. And it is a pleasure to know he got them from my old friend S. D. Barnes, of Arkansas; who he would have found, by the way, had he taken the trouble to look, has quite a conspicuous bump of locality on his manly brow. I am happy to have such illustrious accompaniment:

SIT DOWN! That is what to do if you get lost.

Forest Fires. — Other emergencies may arise, as the result of fire, storm or flood. Here the order of the day is very different. In the case of a bad bush fire, the last safeguard attempted is back-firing, or building a fire in advance of the oncoming forest fire, to burn a strip of intervening forest across which it is hoped the real conflagration will not jump. In most cases a camping party has ample warning of the approach of a fire to make their escape; it is those who remain to fight the flames that take the risk. Nowadays the forests are so valuable that no bad forest fire breaks out, either in this country or in Canada, without there being a force of fire wardens, forest rangers, or even soldiers, quickly on the scene to fight it. And of course they will have charge. Inasmuch as this is the case, and there are serious penalties for starting a fire, Boy Scouts should hesitate to start a back-fire. It is their place to

first get to a place of safety and report the fire if it starts near them; then to join in the fight if wanted.

Needless to say, it is *criminal carelessness* to permit a camp-fire to set fire to the forest, and no camp-fire or cooking fire should ever be left behind to burn itself out. Souse your fire thoroughly, and then take a pole chopped to the form of a paddle and dig the ground up where the fire has been, and drench this. A camp-fire may burn down deep in the duff of the forest floor and smoulder for days, to eventually burst into flame and start a disastrous conflagration.

Sand or dirt thrown on a surface fire will do much toward extinguishing it. And of course every Scout knows how to beat out a fire with evergreen branches. A back-fire must always be started to the windward of a stream, a road, or a long strip raked clean of dry leaves and trash and spread with fresh earth or sand. This strip needs to be long enough to stop the approaching fire, and the ends must be watched or the back-fire may execute a flank movement. It is in the dense forests where there is considerable down timber and thick ground cover that fires are bad. I have known such a fire, fanned by a fairly high wind, to not only burn nearly every tree in its path, and the duff right down to the underlying sandy soil, but to set fire to farm buildings half a mile away. It is astounding to see the large pieces of burning bark and other débris that will rise from such a fire and borne on the heated air sail long distances, and start new fires. I will never forget the fire which started one August Sunday, thirty years ago, in a timberland near our home, showered us all afternoon with burning brands, which we only prevented from burning us out by the hardest kind of effort. Barns were burned on both sides of us, with

horses and cattle, and one man. It was caused by carelessness on the part of a man who had been burning brush. Again, I have seen a bad forest fire caused by a careless smoker throwing away a burning match.

What to do if cornered by fire? Hunt a hole or get out on the water. Under an overhanging bank of a stream is a good place. You may even have time to do some tunnelling. But if you do, 'ware cave-ins. If exposed, thank your stars if you are wearing woollen clothing, and if you can manage to, get well drenched before the fire comes. Keep down. Heat rises, and so does smoke. Get where there are not so many trees. Perhaps you can work around to windward. Don't underestimate the danger. A very insipid little fire can burn you to death or suffocate you.

Wind Storms. — I have never been mixed up at close hand with a bad windstorm, my nearest approach being an experience in the woods in southern Illinois not far from St. Louis, the evening the cyclone devastated that city. A couple of trees came down around us, where my brother and I were camped in our wagon, and there were a few branches blown about, but I do not recall that we thought much of it at the time, except that it was a wild storm. There really is not much to be done in the case of a windstorm, because if bad, it is pretty apt to take matters in its own charge. It is wise precaution never to pitch your tent under large trees that may fall on it if blown down. A dead tree is especially to be avoided. Watch out sharply for falling limbs. When deer hunting in the Adirondacks once, a companion camped us in a deserted lumber shanty close under a leaning dead tree. I was afraid of it, and he confessed it was not a very reassuring situation, and so at

the expense of some effort, for we had a couple of deer to carry, we moved to another shanty. A couple of weeks afterward we were told by letter by the lumber boss that the leaning stub had smashed in the shanty roof "and busted the stove."

Floods. — Floods not infrequently take toll of inexperienced or careless campers who make their camp in some narrow valley close to a stream. A cloudburst comes, or a dam bursts, upstream, usually in the middle of the night, it seems, and — you know the rest. Keep up out of reach. A gorge is no place to camp anyhow; nor is a low island or bottom land close to any stream that can possibly flood you out. If you have ever seen a bad flood you won't hanker for the adventure either. Aside from being chased up on a levee by Father Mississippi one spring morning with my tent bearing a neat, brown high-water mark, I have nothing to record in the way of experience. But I have seen plenty of evidence of what a cloudburst will do, and reiterate, camp high!

As a Scout you are prepared for accidents, having had or being in position to receive special instruction in first aid and life saving. Your Official Manual gives you good directions, and unless you are a lone Scout or a member of a patrol with no Scout Master, these instructions have been or will be supplemented by others by men competent to teach you. Personally, I think the methods of breaking "death grips" taught the Y. M. C. A. members by George H. Corsan, are very good indeed, as is also his system of teaching the crawl stroke, and I advise you not to miss a chance to become acquainted with them.

Coolness and good common sense will stand you in good stead in any emergency. You must depend upon your own judgment, largely, except in rendering first aid, when technical principles must rule. Take account of your capabilities and limitations, do your best, but do not attempt the foolhardy.

Seen and Unseen. He Whistled to Attract their Attention

CHAPTER XV

OBSERVATION

THE "eagle eyes" of Indians, old-time scouts, woodsmen, plainsmen, mountainmen, have been celebrated time without end. One might think, if inversely one did *not* think, that these men were born with telescopic eyes. On the other hand, Mr. Kephart might tell us they were not born with better eyes than common, that they merely cultivated their wonderful eyesight, through uncommon interest in things difficult to see. For my part, I think they had mighty good eyes to begin with, and trained them well.

The Eyes of Old-Time Scouts. — The only old-time scouts whose eyes I have noticed particularly have been Captain Wm. F. Drannan, who was chief of scouts under General Crook when, as he told me, "Buffalo Bill — not the original Buffalo Bill,* but Cody — was a boy," and Captain Jack Crawford. I would say the eyes of both were especially interesting, and easily enough suggestive

*Hon. Wm. Mathewson, still living, at Wichita, Kansas.

of the intense eyes of an eagle or a hawk, particularly those of Captain Drannan. I have often noticed that the eyes of noted hunters — and by that I mean hunters who are their own guides — especially those who have spent much time in "big" country and been accustomed to long vistas, have a distinctly different quality or expression from those of other men. It is a different expression from that of the expert long-range military rifle shot, too, if my observation amounts to anything. But I would not attempt to tell by looking at the eyes of different boys which could see the sharpest. For even the eyes of an Indian boy among them would not have developed the hawk-like intenseness that in later years would mark him as keen sighted. In short, extra good scouting eyesight is largely acquired, but the fellow who develops it to the highest degree is the one who had extra good eyes to begin with.

Seeing "By Deduction." — For the same reason that you should pay attention to the unusual things to avoid losing your way in a strange country, you should look for the unusual things to develop your eyesight. A woodsman or a plainsman often in fact "sees by deduction." To illustrate, if he sees something unusual and cannot make it out, his brain instantly sets to work to help, and perhaps he shortly sees very clearly what the thing is. You can prove this to your satisfaction easily enough. It gives you a peculiar feeling to see what has been but a vague blur take form when the brain turns on a little more eye-strength.

One afternoon, while hunting wild turkeys in southern Missouri, I was sitting very still with my back to a tree when I heard a slight noise behind me on my right, as of

something walking in the dry leaves. Craning my neck ever so slowly, I got a glimpse of a movement just over the bulge of the ridge, at the base of a tree, about fifty feet away. It was close to dusk, and I had reason to believe what I had seen was the back of a turkey. With straining eyes and aching neck I watched the place intently for some minutes, not daring to move, as, if it was a turkey I was in a bad position to get a shot if it took alarm. There was another movement, just a fleeting glimpse of something dark, and another rustle of leaves. It was very like the action of a turkey scratching for acorns. I kept on looking out of the tail of my right eye, and my! how my neck did ache. More movements. But by this time I was pretty sure it was not a turkey, because a turkey would certainly have stopped feeding to raise its head to reconnoitre. And as it turned out it was not, but a very different "bird" with four feet, a couple of white stripes on its back and a bad (smelling) reputation. Rest assured I didn't disturb him at his grubbing.

A Swimming Bobcat. — Once, when on a fishing trip in Nova Scotia, my companion and I had just thrown down our packs on the shore of a lake at the end of a hard two-mile carry, when I noticed a rather long, round-headed, reddish-coloured animal about the size of a shepherd dog swimming laboriously across a cove of the lake, a couple of hundred yards away. "A bobcat," I cried, and ran to head it off. My friend called me to get in the canoe with him, and the woods ahead of me being very thick and the going along the shore impossible, I reluctantly complied. Too late, the swimmer had gained the shore. We did not bother to hunt for tracks.

Was it a bobcat? Certainly I had never before seen one in swimming. My friend, a sportsman of more than average intelligence and experience, contended it was not, and retreated from fawn (None in the province) to beaver (Why did he get out the canoe?), and finally dug his trench at fox and, for all I know, he is still there. We dropped it of course. But I will tell you why I think I was right. In the first place, I am considerably younger than my friend, and at that time did not wear glasses, and do not now, except for reading; he, however, wore glasses all the time. In the few seconds of time devoted to looking at the animal, I clearly distinguished first, that it swam so high in the water that its rump and most of its back were plainly seen; secondly, that its swimming movements were awkward and slow — I could have counted its strokes. It could not have been anything but a bay lynx or a fox, and the mode of swimming I have mentioned is not characteristic of a fox, which is a much shorter-legged animal than a lynx.

Now, my eyes alone did not tell me the animal was a lynx, yet I named it with conviction almost instantly.

Practice for the Eyes. — Similarly, a Scout who is awake will know many things he sees but imperfectly. And all the time his eyesight will be growing more keen from the practice. It is concentration that does it; concentration upon the unusual, the out-of-place. Movement, naturally, will attract his attention the most quickly. At first this will have to be pronounced, but in time a very slight movement will be noticed.

It is excellent practice and good fun to find a comfortable seat, keep perfectly still and watch. At first nothing will

seem to be stirring. That is because you have been about. Wait, and by and by the Hidden Things about you will resume their activities. You may be surprised to suddenly perceive you have company that you never suspected to be in the neighbourhood. Keep still. They will all lie low or silently slip away unseen if you do not. It is fun to play at being a stump, and you will be surprised to find that the wild creatures' eyes are not nearly so good as you supposed. You will find that very few of them will discover you with their eyes if you do not move. Some may scent you, but otherwise you will be pretty well hidden if you sit down almost anywhere. Deer are not sharp-sighted, but when it comes to smelling! To "hide" yourself without concealment, select a background similar in colour to your clothing. This will not be difficult if you are wearing your uniform. Coloured hatband, tie or neck kerchief should be removed. And remember that to be still means just that and nothing less.

Playing Stump. — Once while sitting still by a trout stream, I had an amusing adventure with a mink. For some time I could see him loping about in the shallows, in his nervous and seemingly aimless way. I did not expect he would come near me, but finally he vanished, to reappear on the driftwood pile upon which I was sitting, wet and sleek and vicious looking, almost within my reach. He sat up and looked right at me, seeming not sure whether he was looking at a man or had been eating too much fish. I said "Hello! Brother Mink," and he gave such a jump that he actually fell into the brook. Had I tried to stalk him, when I first saw him, he surely would have noticed the first movement I made and slipped away.

Hunters and nature students quite naturally get to be good observers, and see very many interesting things in nature besides what they see of the animal life. But a Boy Scout can see more in a given locality, if he sets himself to doing his best, because he is interested in everything. A sink in a limestone ridge, a red sky in the east at sunset, a wolf track in a washout, a pebble turned damp side up — he notices all sorts of things, usual and unusual, because so many things tell him so much, in the fascinating game of "reading sign."

Studying Tracks. — Learn to distinguish the tracks of whatever wild animals there may be in the section where you make your hikes, and to read sign for yourself. Puting two and two together will explain many problems. If not blessed with the opportunity to study tracks of large game, which you most likely will not be, turn your attention to what you have, even field mice, chipmunks, and the like. And do not despise the practice to be had from tracking domestic animals and people. Some of the best and most important trailing ever done has been that of following the tracks of horses and men. And, by the way, do not be led by the drawings in your Scout manual to believe that the hind feet of a horse are larger than his front ones. Any blacksmith will prove to you that this is not true of the average horse. The front ones are the larger; or at least they make the larger track. The hind track is longer, but narrower.

Tame Tracks

Dry tracking is naturally the most difficult. If you can

follow a dry trail in the woods or fields you are a wonder. Get out early, before the dew or the frost is off the grass; your chances are much better then. Grass trailing is easy if the grass is high or wet with dew. The grass will be found to be bent in the direction the trail runs, if following a newly made trail. A runway, as of deer or other animals, will of course require closer scrutiny, and if animals have

Tracks Unmistakably Wild. The Deer was Walking; When it Came to the Bear's Track it Got the Bear's Scent, and Went Away "On the Jump"

passed and repassed on it during the night, may puzzle you well. As your chief object and practically your only hope well be to learn what animal or animals have passed, hunt a damp or wet place and figure it out. In the case of hoofed animals the tracks of the males may be said to be generally less pointed than those of the females, to spread wider, and to "stagger" more.

On wet ground you will easily recognize the difference between the fresh walking, trotting and running tracks of any heavy animal, not alone by the manner in which they are placed, but by the amount of impress made. If it is not raining but the ground is wet, absence of water in deep hoof tracks is sure indication that they have been but recently

made. Droppings are known to be fresh, of course, if warm.

Stories in the Snow. — Tracking in snow is easiest of all, yet sometimes difficult enough. The study of tracks made in snow by people is fascinating, and you will enjoy especially trailing some hunter and figuring out all you can about him and what he has done. Wolf, coyote, fox, and dog tracks "all look alike" to the average person. But the tracks of wild animals are more slender than those of dogs, as the tracks of wild geese or ducks are smaller than those of tame ones. And the wolf, coyote or fox always takes a longer stride than a dog making tracks of the same size.

The tracks of the rabbit and the domestic cat you will certainly know; also those of the woodchuck, muskrat, 'coon and 'possum, if they are found where you live. A couple of my Scouts have in the last two winters trapped a dozen 'possums around barns and poultry houses within five minutes' walk of my home, and I have captured (without any trap) not only a 'possum but a muskrat on the sidewalk in front of my house, both times at night, of course. Some of you will know the porcupine's (not a hedgehog) pigeon-toed trail, others that of the badger, also pigeon-toed, as is that of the beaver. Still others will easily recognize where the 'gator has "dragged his skiff" across the sand. Bear tracks, cougar and lynx tracks, where seen, are unmistakable; the cat tribe have broader and blunter feet than the canines. Mink and weasel tracks are easily recognized; they follow the streams and lead to holes; and the mink tracks are of course the larger, with conspicuous claw marks. The skunk's track is easily recognized by its similarity to that

of the badger and the porcupine to the extent of showing up his deliberate, easy going habit of life. He does a deal of walking, and takes short steps, only about half as long as a house cat, and with his feet well "straddled." But he does not toe in.

Bird Tracks. — Of the birds, the ground runners — the quail and grouse of different species and the wild turkey — largely non-migratory, will be about the only ones whose

An Example of Bad Judgment in Selecting a Camp-Site

tracks will interest you, and then only in the snow. The quail never hops like a robin or other upland birds of its size, and its dainty tracks will be easily known, being about the size of those of a pigeon. Scatter feed in likely places in severe weather, and provide shelters of brush or corn-shocks. The quail are getting pitifully scarce, and we have no better bird. The ruffed grouse will not take feed so provided, except mast (acorns and beech-nuts), and winter-green; it is useless to provide them grain. The track is sure to be recognized by a Scout living where these birds are to be found. The same may be said of the blue grouse,

sage hen, sharp-tail grouse, and the prairie chicken. Of the two latter, the sharp-tail has feathered legs and feet, while the prairie hen has not.

Hearing Things. — Hearing plays a part in observation that is of more importance than you might think. An experienced duck hunter can tell the species of a flock of ducks almost as far as he can see them, by their flight; but it takes a past master to know them at night by the sound of their wings, and maybe a murmuring call or two floating down out of the black mystery of the sky. And that reminds me that night is the time of times to hear things worth while in the wilds. The "voices of the night" will give you many a thrill. Have you ever heard a toad cry when caught by a snake? Do you know the squall of a 'coon, the bark of a fox, the hunting caterwaul of a lynx, the whistle of a deer? Have you ever heard a cat-bird *sing* — not mew, but sing, at night, in a way most entrancing to hear, surpassing by far the best efforts of the celebrated hermit thrush? Do you know the meaning of the stealthy movements you hear? Can you hear a porcupine gnawing a hemlock top — or if you hear it at all do you pass over it merely as "some noise"? Have you heard the gray wolves' saturnalia, or the alligators' "fight bellow"? Does the distant barking of a farm dog or the neigh of a horse tell you anything in particular? Or are you like the man of whom the poet said:

> "A primrose by a river's brim
> A yellow primrose is to him."

To come right to the point, observation in its highest sense means the harmonious exercise of all the faculties,

keyed up to concert pitch. It means to be awake in every fibre to the challenge which Nature gives us, and know what is going on about us. To know by sight, sound, and scent all we can, and then some; which latter may apply to anything, from discrimination in choosing a camp-site to prognosticating a mild winter. And it is decidedly worth while; in my opinion the really big feature of what we call "scouting."

CHAPTER XVI

BIG THINGS

IT IS no end of fun to be hiking or getting ready to hike, even if we are not going out of sight and sound of home. There is much pleasure in getting all you can out of little things; I like to think of John Burroughs sitting in his barn, looking out upon the world through the wide-open door, the finest type of dry-land sailor home from the sea and happy with little things. Maybe I myself am come home a little prematurely to the joys of what Mr. Burroughs has called a "barn-door outlook." It is a big, broad, generous outlook, anyhow, and it is pleasant too, to be back after years to almost any starting point.

But the big things! How they do stir you in your teens. They may not be big at all, viewed in maturer perspective, but they everlastingly do take hold of a boy. I really believe that I got so much pensive pleasure out of wanting some things as a boy, that when I finally did get them, as a man, almost all the fun had been wished out of them. And by this I do not merely mean things I wanted to have, as a boat, a bicycle or a gun, but to a greater extent the things I wanted to do. Far fields certainly are beautifully green to a boy. And, oh! the fun of starting off to them.

Dreams Come True. — Circumstances taken into consideration, the big hike you dream about so much may be quite

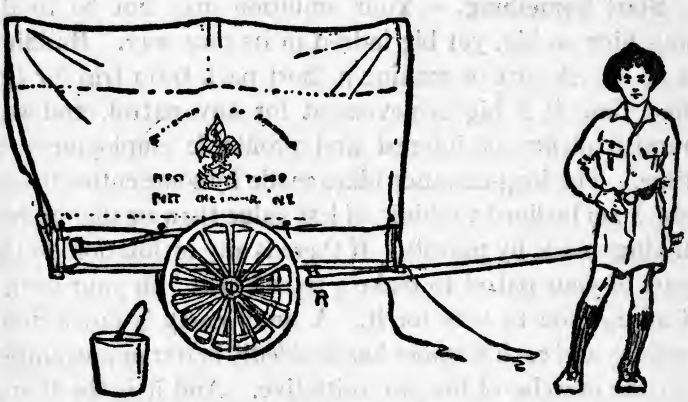
within your grasp. An excellent way of getting there is to make a patrol hike with a horse, or better still two horses, and a covered spring wagon to haul the camping equipment. Some troops make good use of a trek cart for a similar purpose on even their shortest hikes. Others sometimes use an automobile, a boat or a whole fleet of them, pack-animals, bicycles. The Scout Master of the troop of which my youngest brother is a member took five of his Scouts on a bicycle hike all the way from Iowa to the National Capital.

Start Something. — Your ambition may not be to do anything so big, yet big indeed in its own way. Building a good trek cart or making a short pack-train trip for the first time is a big achievement for any patrol, and will furnish plenty of interest and profitable employment of time. The long-distance hikes made by some entire troops are, I am inclined to think, of less value than smaller undertakings made by patrols. If there is any inclination on the part of your patrol to make a patrol hike "on your own," I advise you to vote for it. A small party is much more mobile, and each member has decidedly better opportunities for the exercise of his own initiative. And it is the things you do *yourself* that count. The real scout never lived who was willing to be the tag end of anything.

Anticipation many times is half the pleasure of an undertaking. The work of making a trek cart, building a bridge or a cabin, rigging up a wireless outfit, dredging and damming a swimming hole, or anything of the like, is often the real fun. It is work certainly; but the greenest of green fields afar are generally those to which we must work our way.

A Trek Cart. — The matter of a trek cart is one not to

put aside without serious consideration. If you are blessed with good roads, do not live in the heart of a big city, and the suburban trolley means little or nothing to you, and particularly if you are not up to carrying a twenty-pound pack, you had better get interested in making a cart — unless your troop or patrol already have one. Troop No. 1 of Port Chester, N. Y., near neighbours of ours, have one which they made that I think is an excellent model. The illustrations accompanying this chapter will give you a

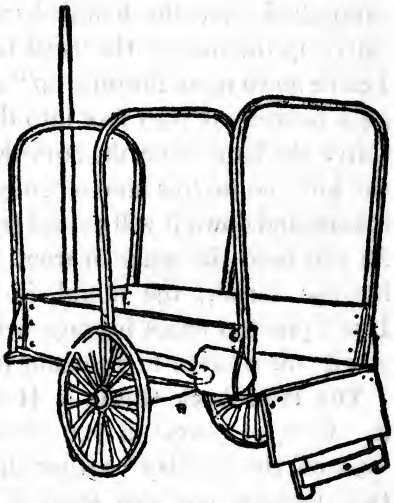


The Port Chester Trek Cart

good idea of what it is like. Their Scout Master, Mr. A. G. Clark, tells me they use it mostly for overnight hikes and are able to pile into it all the equipment one of their patrols have use for. The body is of cypress, 6 feet 3 inches long by 30 inches wide, has an oak spreader with iron braces at each end, on the bottom, and rests on an oak bed-piece mounted on a steel axle. The wheels are of hickory, and of course were bought "ready made"; the bows are hickory and were obtained from a delivery wagon that had passed

its stage of usefulness. The pole is attached with a bolt hinge, and in camp serves both as a prop for the cart and as the bottom section of a jointed flagstaff. The canvas is waterproofed, and lettered in dark green (well done, by a Scout) and the cart is painted olive drab. Traction is by ropes tied to the front spreader.

The tread of this cart is too narrow for use on any but the best roads, such as we have in this section, and I recommend the standard 56-inch tread, or 60 inches if in the South. Even if the highways are generally good, you will need the standard tread as soon as you come to a back lane or woods road—unless such lane or road has been used only by sleighs, when wheeling will likely enough be out of the question anyhow.



Detail View of the Trek Cart

Such a cart will transport grub, tents, and folding cots, and prove a blessing to small Scouts.

The Bike Hike.—Bicycle hiking is attractive because of the amount of ground that can be covered, and the comparative ease of travel. "Packing" your wheel, if you have one, will give you something to test your skill and ingenuity. But you are better off to-day than we were before the coming of the motor cycle; for there are many handy appliances that can be obtained from the supply houses that

would have brought joy to the old-time "bicycle tourist." If you have a motor cycle — well, you have enough!

Don't attempt to arrange any sort of luggage carrier in the open "diamond" of the bicycle frame. Get a good one — or make one — to fasten over the rear wheel, and another to go on the handle-bars. Carry left-over equipment in your pack-sack. But do not go with too much on your back, for if you get a fall it will "sure pile you." Riding a motor cycle so loaded one day, I struck a dog, catapulted over the handle-bars, and instead of soaring safely up the road in the usual fashion — or is it a habit — I came down most abruptly on "all fours," and the way that pack pushed my poor face into the macadam was shameful. Carry the lantern on the crownhead, if you take one; if on the fork, no matter how securely, the rough going may jar it loose and down it will go and tear out some spokes for you. As you need the space in front of the crownhead for your luggage carrier, the moral is, Don't carry a lantern. Don't pile too much luggage behind you, as it may throw you if you attempt to dismount in a hurry.

The Horseback Outfit. — Horseback? You can't beat it. Best, of course, if you are going to browse along and "eat off the country" rather than herd a pack animal or two, because you can *travel* if your horse is your ship. Having your horse, you doubtless have your saddle. If not, let me recommend the McClellan. I know that if you live in some parts of the West you will follow your own inclinations and get a swell-fork stock saddle. If your pony or horse is well set up, well and good, for you doubtless are not much of a load for him. But you don't need that horn, nor the weight. A stock saddle is made for work, the

heaviest kind of it. Why go buggy riding in a lumber wagon? The cavalry saddle will carry you and your outfit, and it will save your mount. You may not be able to snake wood with it, and you may feel more secure wedged in between the high cantle and the swelled fork of the Mexican saddle, but I still think the light, cool McClellan will better suit your horse.

The same tent, stretcher, and blanket will serve, and everything else except the pack-sack and the heavy-soled shoes. Add a pommel slicker. And to your horse outfit (having saddle, saddle blanket, halter, and bridle), add 30 feet of strong, tight, $\frac{3}{4}$-inch hemp rope (for picket), a 4-foot section of hobble rope (unwound from heavy rope), 8 belt-lacing thongs, or whangs, grain-bag for oats, and a curry-comb.

Your tent and slicker will serve in lieu of saddle-bags. Roll stretcher-tick and extra clothing in the slicker, and tie across the pommel; tie the ends down with whangs. Make a yard-long roll of blanket, grub and utensils, all in the tent-cloth, and big around as a stovepipe; sling behind the cantle, strap, and tie the ends down to the spider-straps with whangs. When you carry oats (you can buy them almost anywhere in the country, so will not need to carry them far), divide them equally in the bag, which tie in the middle with a whang, throw the bag across the pommel and tie. Oats will not be needed if the grazing is good, of course; but don't forget your horse. Four quarts a day is about right.

Break your horse or pony to picket by the pastern of one of his front feet instead of by the halter, as he will be much less likely to throw himself. Use the bowline knot, and

wrap the loop around the pastern well with a neat strip of some strong woollen cloth, in lieu of a hobble cuff. If the horse has never been picketed before, protect the pasterns of his hind feet with burlap, so if he does become entangled with the picket rope he will not burn himself, at least not seriously, in his struggles before you can quiet him. The reason for picketing him by a fore pastern instead of by the head is that the picket rope then is always on the ground, and much less likely to catch his hind feet. Of course a horse cannot be picketed in brush or among trees, rocks or stumps, and hobbling becomes necessary. Do not tie him short to stand all night as at a hitching post, or he will become stiff. Besides, he must feed. Take the soft unwound hobble rope and with it tie his forelegs together above the fetlocks, 10 inches apart and no more, as follows: Pass the rope around one leg and bring the ends together, cross and twist tight for 10 inches; pass the ends in opposite directions around the other leg, and push them through the twisted strands as in making a splice. Turn him loose and watch the rascal hop! Put the bell on him if in the woods, and be sure the pasture is good, or you may find he has hopped some miles toward home when you turn out in the morning.

Pack-Horse Transportation. — There is nothing intricate about the "diamond hitch" that you so often see mentioned as being "mysterious." The various diamond hitches and others are simple enough. But you do have to use judgment in throwing any hitch, as you will easily understand when I explain some of them, or as you fully realize if you do know the art. Yes, packing is an art; an art for the handy rather than the brainy.

A pack can be lashed on a bare horse, mule or burro, without any saddle, by what is known in the Northwest as the squaw hitch. To begin with, you almost always need

Fig. 1. — Top View of Pack Secured with the Squaw Hitch

a stout rectangular tarpaulin or pack-cloth for packing, if only to go on the top of the pack and protect it. Spread this, and on one half of it pile up your duffle, etc., for a broad, flat, compact yet soft pack. Fold over the edges of the tarp, then the other half of it. If wisely folded, you will not require to bind it to lift it. Now place this, evenly divided, across your animal's back. Next, take your hitch rope and loop upon the pack as shown at *a*, Figure 1. The ends will of course trail on the ground. Pass them under the animal's belly and through the pair of loops of the rope on the off, or right-hand side (*b*), bring back under and up on the nigh or near side and pass through the single loop there. Cinch up and make fast, (*c*). Better put a saddle blanket on the animal, if you have one, before packing.

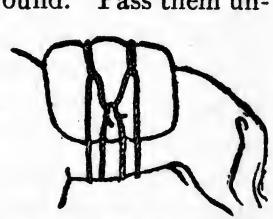


Fig. 2.— Horse Packed by Using the Squaw Hitch. The Hitch-Rope is Spread too Much on the Horse's Belly, and the Hitch Should be on Top of the Pack, but these Liberties are Taken for the Sake of Clearness

For regular packing you should have a good pack-horse outfit, including saddle blankets, cross-tree pack-saddle and harness, consisting of double

cinches, breast-band, breeching and crupper; a pair of pack-bags or boxes, a pack-cinch and a hitch-rope.

Harness up, cinch up tight, and sling the pack-bags, evenly loaded, one on each side, horizontally, close up to

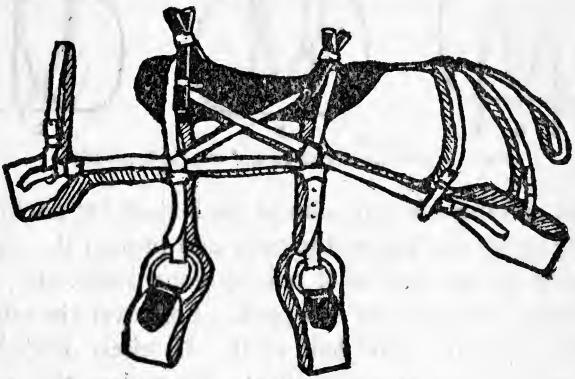


Fig. 3. — Cross-tree Pack-Saddle and Harness

the "sawbuck" saddle. On top of all place a mattress-like bundle of tent and bedding, folded in the pack-cloth. Now you are ready to throw either one of the following hitches, the first variously called the "prospector's," "sheep herders," and sometimes erroneously the "squaw" hitch, but in reality the cross-tree, a good one-man hitch, and the second the single diamond.

Fig. 4.— The Pack-Cinch

The Cross-Tree Hitch. — Attach the hitch-rope to the ring of the pack-cinch, and throw the cinch across the top of the pack and let hang down to ground. Reach under and catch the cinch, bring up and engage hook, using the jam hitch, as shown in Figure 5. Cinch up by pulling down on the standing rope and taking up the slack by pulling up the

running, or loose, end. If not using the jam hitch you would simply pull upon the running end and would have to hold the slack gained. Make a bight with the running end and pass under the standing rope as shown in *a*, Figure 6. Go around to the off side of the animal, enlarge the bight, reverse it and loop over and under your pack as shown in *b*. Return to nigh side, pull slack up hard, then pass the running end of rope over, under, up and over the bundle on that side and secure, *c*. If you have hauled away hard your pack should now be pretty secure. Go over it and gain any possible slack. And of course, with the single exception of when tightening the rope before making the

Fig. 5. — How the Jam Hitch is Made

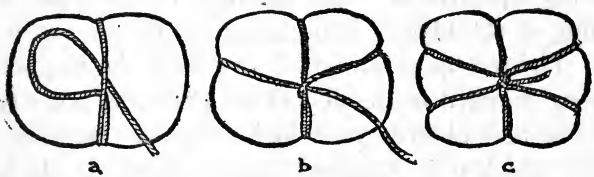


Fig. 6. — The Cross-Tree Hitch, Top View of the Pack. Running Rope Not Tied at *c*

bight, always haul forward or aft, never at a right angle to the pack animal. The big advantage of making a jam hitch around the cinch hook is that any slack once gained never gets away from you. Two can pack better than one.

The Single Diamond Hitch. — The single diamond hitch is started in exactly the same manner as the cross-tree hitch. When you come to making the bight, make it small, and take two turns around the standing rope with it and leave in the position shown in *a*, Figure 7. Go around to the off side and carry the running rope to the rear, under

the pack, forward, and pull snug but not taut; carry up, over, and down through the bight to the position shown at *b*. Now return to the nigh side, and haul away for'ard, throwing your weight on the rope and bracing your foot against the pack. Carry the running rope under the

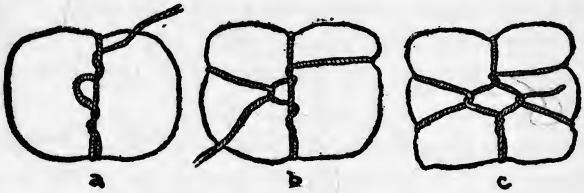


Fig. 7. — The Single Diamond Hitch, Top View; Running Rope Not Tied at *c*

pack and to the rear, bring up over and pass under the standing rope around which the bight was wrapped, *in* the opening of the bight. Haul away to the rear, and make fast. Tighten up all around if any slack can be gained; if properly handled in the first place, of course, not any can. You will now observe your bight and the standing rope around which it is wrapped form a diamond. It is this diamond which automatically takes or gives in all directions, so maintaining a uniform degree of tightness on all four sides of the pack, that has made this hitch famous.

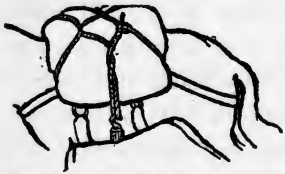


Fig. 8. — How the Single Diamond Hitch Secures the Pack on a Horse

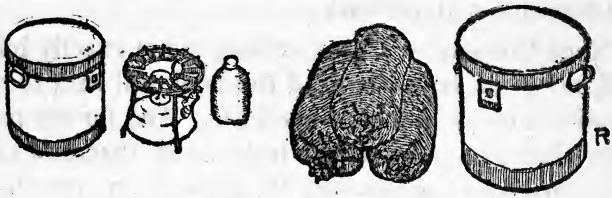
Only practice, and lots of it, will make you a good packer. There are a great many things to learn, not the least of which is how to keep your pack animal from getting a sore back. To get the hang of these hitches, it is by no means necessary to have a pack animal and an outfit,

as described. You can make a pack of your blanket and with your tent rope for both hitch rope and cinch (a bowline knot for the cinch-hook) can pack it on anything that will furnish a suitable back.

Canoe Cruising. — Canoe cruising is not exactly hiking. Still, not a few boys who read this book will wish to make scouting trips in canoes or rowboats. And for my part, I know of no pleasanter way to make a trip than in a canoe. You can be so comfortable, the going is so smooth, and generally so interesting. Carries are sometimes difficult, but there are such things as fair winds and favouring currents to make up. Dangerous? When I used to canoe on the Hudson River I had an all-cedar decked cruiser that I could sit in and paddle when it was completely swamped. As for swamping it, I had to do that by main force, for the little boat was as steady as a church and rode everything in the way of a wave the Hudson had, as sedately as a black duck. I used to put much of my kit and duffle in the watertight compartments fore and aft, and as the hatches were small this entailed small packages. Lately I have owned an open canvas covered paddler, and had more leeway as to what I might wish to take with me. Of course, every canoeist should be a swimmer.

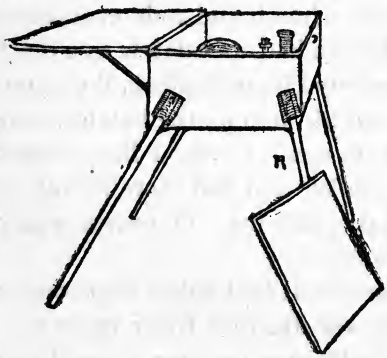
For a cruise with no carries, or at best only a short one or two, the grub-box used by the Hudson River cruisers is to be recommended. You will have to make yours if you want one, as they are not on the market. An accompanying illustration shows fairly well what it is like. The legs are detachable, the lid props up, and with an extra board carried for the purpose laid in its place, becomes a good table. Instead of in one of these I carried my grub in a

round tin flour-can. My blue-flame kerosene stove went in another, together with a flask of alcohol for priming. These stoves were used because of the scarcity of firewood, not



Some Canoe-Cruising Adjuncts to the Hiker's Kit

because they were by any means a joy forever. If you ever use one, build a wind-shield for it, if you expect to cook anything with it when the wind blows. A cylinder of tin or sheet brass, just the right height, to slip on it around the burner and inside the supporting arms of the grate, is a good thing.



Canoeists' Combination Grub-Box and Table

You can carry a good big tent in a canoe, and I do not know of a better all around design than the so-called canoe tent. It is similar to the tarpaulin tent described in an earlier chapter, but has a wall at the back. If using an open canoe and husky enough to wrestle it, learn how to carry it on the paddles, Indian fashion.

Pioneering. — Building bridges or rafts, and other so-called pioneering activities, will be among the most interesting of the big things to be tackled on your hikes. All

necessarily will have to be of a nature to be quickly gotten out of the way; for the hiker makes a flying camp and is up and away. The plodding jobs must wait; or at least they do not become a part of the hike. For a 20-foot bridge that can be built in an hour by a couple of patrols who are handy, I think that originated by Troop No. 1 of Port Chester,

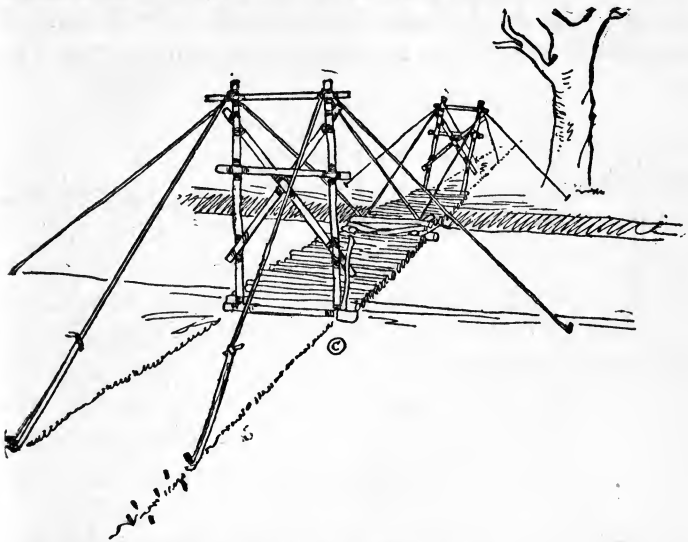


Fig. 1. — A Scouts' Suspension Bridge

N. Y., is a very good example. Its construction will readily be understood from the accompanying illustrations. I have seen this bridge built, with poles that were already cut, in an incredibly short time; but no trestles had to be erected. Different forms of trestles will appeal to different Scouts. The design which I suggest is a good, strong one, though perhaps taking longer to make than some others. These trestles are not used by the Port Chester Scouts.

First the trestles and the suspension ropes are erected, as shown by the solid lines in Figure 2. A turn is taken around the pole with both ropes on one side, as shown by 1 and 2, and the small rope *D* is flung across to the Scouts on the other side, who haul the pole down to the position *A*. The width of the stream is made small in this diagram for the sake of clearness in the detail of the bridge construction. When this key-pole is in position, two long

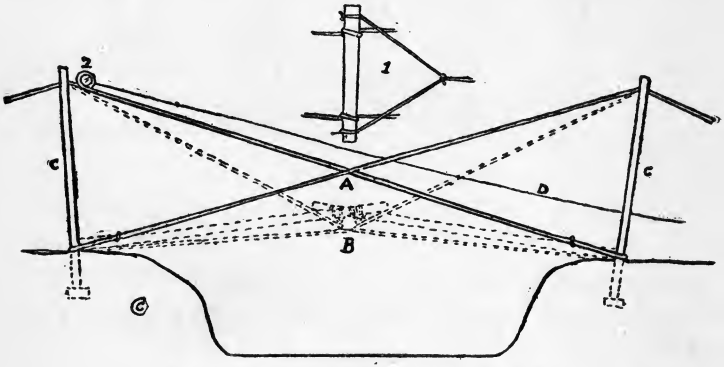


Fig. 2. — Plan of Suspension Ropes and Key-Pole

string-poles are laid upon it from the shore, as shown in Figure 3. The dotted lines in this figure indicate the ropes from the farther side, which of course must be in position to support the poles. All four ropes must be drawn taut as possible by hand before any weight is placed upon them. When the four string-poles are in position, a Scout climbs out from one shore and lashes them to the key-pole. Meantime other Scouts on both sides are laying the corduroy floor of the bridge. When completed it will occupy the position *B*, Figure 2, the ropes having

stretched. When loaded it will sink to about the level shown in Figure 1. If possible the suspension ropes should be made fast to trees or stumps. If not, a fish-tail drag should be rigged, as shown by Figure 4.

Trail making for the benefit of the public is an excellent idea. We need more recreation trails in this country; not

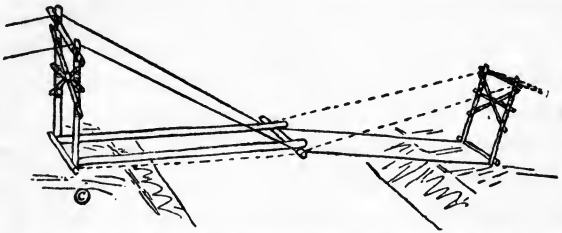


Fig. 3. — How the String-Poles are Laid. Two of the Four are in Position. Dotted Lines Represent One Pair of Suspension Ropes, for Clearness

mere park trails, but wherever people will go to spend days off. And of course the posting of road signs is always good public service.

And now for a final suggestion or two, in which I shall reiterate one made to the Boy Scouts of America two years ago. I know of no finer scouting stunt than for a town or city troop to do some "pioneering" in the school-yards of country schools. Country schools are generally poor, and do not have any of the modern playground apparatus. The farmers are good to you town and city Scouts and do not put you out of their fields and woods as trespassers, as they could. Of course as Scouts you show them proper courtesy and respect, and do not leave gates open or cut and hack wantonly

Fig. 4.— The Fish-Tail Drag

among their saplings and timber, and you are exceedingly careful about your fires. But why not do something for their school children? Why not help the farmer boys do something big?

For more real pioneering, work on the country roads offers plenty of opportunities. The building of a King split-log drag, on the coöperative principle, will be a real public service in any section where dirt roads are the rule. Make an agreement to furnish the drag on condition that the materials are supplied and that the farmers use it regularly after rains. Patching up culverts and bridges, and grading the approaches to them, will be especially valuable work in sections where they are neglected, the example often being all that is needed to spur the road users to a proper sense of their responsibilities.

CHAPTER XVII

USEFUL HINTS

DO NOT attempt to travel in strange woods at night without a lantern, unless compelled to, and then only if on a road. On the plains or the prairie, far from any light or mountain spur to guide you, you will be as badly off unless the stars are out; darkness obliterates all the contours and, as the saying is, "everything looks the same."

If wearing a hat, take it off to listen. Or if you must keep it on, pin the brim up at the sides or fold it in on your head. The brim causes a current of air past your ears that may interfere with hearing a very faint sound.

In the springtime, after the fall and winter rains, is an excellent time to look for Indian arrow- and lance-heads. Erosion, the enemy of agriculture, is the friend of the relic hunter.

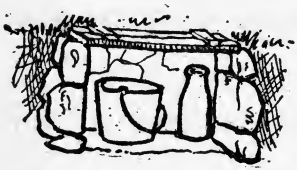
If you get drenched by a shower and are too far from camp or other headquarters, take off all your clothes, wring them out and dress again, and you'll be the better off for it.

Before diving in deep water for the purpose of search, spend *several minutes* breathing deeply and forcibly, to

produce the effect upon your lungs that will enable you to stay under water much longer than you normally could. If you begin to feel dizzy from this deep breathing you will know your lungs are sufficiently overcharged.

If fly-fishing for trout early in the spring, when they do not take flies readily, try the midge flies, which are tied on the smallest hooks, Nos. 12 and 14. The standard size hook for trout is No. 8.

A red sky in the morning is a sign of bad weather or a big wind; gray sky, fine weather. At sunset, a pale yellow sky promises rain or snow, a bright yellow, wind. When the outlines and colours of the clouds are soft, look for fair weather, but if the cloud forms are clearly outlined and their colours gaudy, watch for rain, and perhaps strong wind. When you take a last look at the sky at night before turning in, if you see high upper clouds moving in a different direction from the lower clouds, expect the wind to change. If no lower clouds are seen, note the direction of the wind; if blowing in a different direction from that in which the clouds are drifting, it will change.



A Hiker's Cellar

Waterproof match-boxes of hard rubber and having a screw top are to be purchased in the best sporting goods stores, but are rather high priced, if you consider only the material in them. But the service they render makes up for this. Before getting one of these I used a couple of brass shotgun

shells, 10 and 12 gauge respectively, the latter telescoped in the former. In fact I still use them some of the time, for old sake's sake. If you haven't such a match-box I have been told you can waterproof your matches by dipping them in shellac and spreading them to dry. You would need a rough surface to ignite a match so waterproofed, but could carry them anywhere and need not worry about them. I have not tried this trick with shellac. With liquid glue the matches would not burn. Perhaps I did not allow them to dry sufficiently before trying them.

A folding pocket camera case makes an excellent receptacle for carrying notebook, map, sketching pad, pencils, drinking cup, etc. Leave the strap off, cut two slits in the back near the top, and slip it on the belt. Second-hand cases are sometimes to be had cheap in camera stores. I have carried one when my pack was crowded.

Use wood ashes and a damp cloth to scour your cooking utensils. Sand is not nearly so good and scratches your tinware.

Get aluminum instead of re-tinned steel cooking utensils if you can. But do not have an aluminum cup or teaspoon, as the aluminum alloy is such a good heat conductor that you will be forever burning your mouth.

The best head-net to ward off mosquitoes and black-flies, which are often a great nuisance in the woods, is made of Brussels silk veiling (net) of fine mesh. This material is strong, and this is necessary, as there is plenty of opportunity to tear it going through the woods. The best colour

is black. Make the diameter of the net sufficient to go over your hat, and have it long enough to tie with a draw-string under the collar of your shirt. A stiff hat brim is necessary to keep the net away from your face and neck, or the pests will get to you, sure.

Even with a good head-net as above described, you will need a good mosquito dope. That prescribed by Nessmuk in his little classic, "Woodcraft," is a good one, and is made as follows: Take 3 oz. pine tar, 2 oz. castor or olive oil (I prefer the latter, on account of its less offensive odour), and 1 oz. pennyroyal, simmer together over a slow fire, and bottle for use. A good trick I learned from Doctor Breck is to carry your pocket supply in a bicycle oil-can. Rub the stuff (for stuff it is, and no mistake) on wrists, hands, face, neck and ears — don't forget the ears, and behind them. And leave it on, so you get a good mahogany coloured enamel finish. The amount given will be enough for a patrol of eight Scouts for a week if you are wise and neglect to wash. Dirty? No, clean. The dope is clean, and no dirt can get through it if you put enough on. What do you need the dope for if you are wearing a head-net? Why, for protection when you take the net off, as you will, not only to eat your meals but to get relief from wearing it. You cannot mop the perspiration off your face when wearing a veil, and you will want to. And here another difficulty arises — dope vs. handkerchief! Use a big blue bandana that you do not object to getting stained. A head-

The Scout's Auger. Size ¼ Inch. Detachable Handle. Indispensable for Pioneering.

net which Doctor Breck gave me was half Brussels silk net and half (the back half) ordinary black bobbinet of the best quality. The Brussels net (his idea, I believe) was intact when the cotton stuff was picked full of holes by the brush. Here is a good tip: Don't make your net larger than the diameter of your hat brim.

To get dry wood when everything, apparently, is soaking wet, find a sound stump or log, or even a partly rotten one, and chop into it; you'll be pretty sure to find dry wood inside. Standing dead wood, of course, is best.

The ordinary Scout axe will stand a lot of service if properly handled. However, some Scouts may wish for something better, and for their benefit I will say that the reward is worth the hunt. The best axe I have been able to get is a tomahawk, shaped somewhat like the famous Hudson's Bay Company axe. It was made by a concern in El Dorado, Penn., and cost a dollar for the head alone. The advice of any woodsman will be to have the best axe you can get, "hang" it properly, and take elaborate care of it. The proper way to carry a belt axe, by the way, is with the edge to the rear, and as the most convenient place is behind the left hip (for a right-handed person) all manufactured axe-sheaths or muzzles are wrongly made.

The best cure I have found for ivy poisoning is made by boiling a dime's worth of cardamon seeds (capsules with seeds in them) in a pint of water (for a bad case) and applying the "tea" thus made as a lotion when cold. I have been poisoned quite a number of times, once severely,

when a boy, and have tried numerous remedies. The more frequent the application the quicker the remedy. A friend of mine was quail hunting in Kentucky and got poisoned with poison sumac, used this remedy and found it good. Poison ivy is known from Virginia creeper by the fact that its leaves are in clusters of three, while those of the harmless and beautiful creeper are in fives. Poison-sumac is identified by its white berries; otherwise it looks much like other sumacs and colours beautifully in the fall.

Be careful of stepping on loose stones, especially on a hillside. A round one may roll under you some day and stand you on the back of your neck, as one did to me.

Leather straps, such as skate straps, pack-sack straps, belts and axe sheaths, should be oiled occasionally with neat's foot-oil to prevent dry-rot. I did not realize the importance of this until a good gun-case was beyond saving; now I have a wide-mouth brown bottle of the oil always at hand. Apply to suitcases, handbags, thermos bottle cases or anything leather of value. For that matter, it is a shame to allow even a little strap to be ruined by neglect.

The standard rope used for lariats is cable-laid (twisted, not braided) manilla, $\frac{3}{8}$-inch in diameter, stretched to eliminate tendency to kink. Make an eye splice at one end, preferably around a brass hondo but not necessarily. Finish the other end with the Matthew Walker knot.

Pine pitch will help you in getting a stubborn fire to burn.

Common mud is good for bee-sting, but tincture of iodine is better. The latter is good for any insect bite; and in fact

I consider it the best germicide for a Scout to carry. The Japanese soldiers carried it in crystal form in their last war, but the crystals dissolve very slowly.

Take a yard of "rapid flow" rubber tubing, to be obtained in drugstores, and either an empty "bottle-neck" rifle shell or the brass screw-socket of a gas tip, and you can make a good flexible blow-pipe with which fire making under difficulties will be made easier. Flatten the base or large end of the brass cylinder (if a shell, first cut the base off) so the opening is less than $\frac{1}{8}\frac{1}{2}$ inch by about $\frac{5}{8}$ inch. Insert other end in the tube. And there you are. Stewart Edward White mentions using such an instrument, but larger, given him by a Mr. Robert Logan, who called it an "inspirator." It certainly "inspires" a fire to burn. Hold the nozzle well down under your fire and blow steadily and strongly in the other end of the tubing. I have had one of these blow-pipes ever since Mr. White first described his, and often make good use of it, though I carry it only when there is prospect of having to burn wet wood.

Flexible Blow-pipe

The horse that loves sugar is easiest caught.

Punch a jagged hole in the side of a tin can, large enough to push a candle through. Insert a short piece of candle and light it. Set with the bottom of the can to windward, and you will have a well reflected light that will not blow out. To carry it, rig a wire bail fore and aft.

To mount a horse that may be "bad", stand at his left shoulder, facing backward, pull his head around toward that

shoulder by the cheek-strap of the bridle or by taking a short hold of the rein on that side, turn the stirrup around toward you and insert the foot (left, of course), grasp the horn or pommel of the saddle with the *right* hand, and swing on. If the horse does not start forward you will find it awkward; practise it anyhow. If he does jump forward or to one side, you will land in the saddle. Learn to vault on and you will not be bothered by a horse that won't "stand."

An opened umbrella makes a fair substitute for a canoe sail with which to take advantage of a fair wind.

Kneel on the bottom of a canoe in rough water.

The hour hand of a watch makes two circuits of the dial while the sun goes once around the earth; therefore, while the hand of the watch travels 90 degrees of its circle, say from 9 to 12, the sun covers only 45 degrees. That is why if you point the hour hand of your watch at the sun, the point midway between it and the figure 12 is south; providing, of course, that is it not exactly 12 o'clock, or close to it. South of the Equator the sun is due *north* at noon; one would have to point the figure 12 on the watch dial at the sun, and then the point on the dial midway between the hour hand and the figure 12 would be north.

A hot stone makes a good substitute for a hot-water bottle, which is something one does not carry on hikes. Scouts who eat unwisely may be glad to know this trick some night when they get a touch of abdominal cramp. Or fill a canteen with hot water.

The infantry soldier's old-fashioned entrenching tool, which can be had for 65 cents from dealers in condemned military supplies, is a very handy tool for Boy Scouts. You can both dig and chop with it. and it hangs on the belt in a strong scabbard. I have had one for a long time, and made a lot of use of it.

The Scout's "Digger"

The sanitary precautions of the fixed camp should apply on the hike as well. A latrine need not be dug, but waste matter of any kind should be decently buried. Use the Scout's "digger" just described.

A carborundum instrument hone is the best all-around knife sharpener you can get hold of. Good for the axe, too. The best way to keep an axe sharp is to be mighty careful not to dull it.

A flannel sweat-band for the hat instead of the conventional one of imitation leather, is considered preferable by some old hikers. Until you get used to it, however, it is apt to be disagreeably itchy to the forehead.

No matter what virtues may be ascribed to it in "cowboy" stories, which are seldom written by persons who really know anything about cowboys, a hair rope, or rope made of horse-hair, is, or rather was, never used as a lariat. It is too light and slimpsy. It has, or had, a certain reputation for keeping rattlesnakes away from a man sleeping on the ground, if laid in a single coil around his position, but in fact its value for this is about the same as the practice of carrying a horse chestnut to keep away rheumatism.

A candle may come in handy in kindling a fire some rainy day. It will provide a constant flame that will make an impression where a match would fail. The camper's folding candle lantern, by the way, is a blessing.

The best maps are to be obtained from the Director of the U. S. Geological Survey, Washington, D. C. Write asking for a "key" map of the state or states you are interested in. This will cost you nothing, and from it you will select the maps you want, ordering them by the names as given on the key map. They will cost you 5 or 6 cents each, *in coin.* Unfortunately, the map you want generally is not yet made.

Take a 5½-foot section of the tip of an ordinary 15-cent bamboo fishing pole, and with some stiff copper wire and some waxed thread you can make an excellent bait-casting rod. Copy after some "regular" bait-casting rod, or if you cannot do this, get a fishing tackle catalogue and copy from an illustration. Make the guides and the "top" (for the line) of the wire, whipped on with the waxed thread. Fasten the reel securely on the rod with strong soft copper or brass wire. Wind the butt with cord to make a large-enough hand grasp. This is a fresh-water bass, pickerel or wall-eyed pike rod.

The Soldier's Frying-Pan. Can be Bought Second-Hand for Fifteen Cents

To open a water blister, sterilize a needle, and thread with a short bit of white thread. Pass the needle through the blister and leave a short bit of thread in the hole so made,

to act as a drain. Remove the thread when the blister is drained.

If you suspect the presence of a deer or other wild animal in some thicket or other cover, and desire to get a look at it, draw lots for the best place, and having done this let the fortunate one stand to leeward and near what seems the logical place for the animal to emerge. Then let the other Scout go around to windward. If you are both very quiet the animal will take alarm on getting the scent of the Scout to windward, and doubtless attempt to quietly sneak out. If watching for a deer you must be very alert to see it. Naturally it will take the best way out and will not go toward the place where the scent comes from. If, however, the Scout to windward is noisy and attempts to drive the deer to you, he will most likely succeed in driving it out in some other direction.

Wear a pair of old "kid" gloves with the fingers cut off to protect your hands from black-flies; suède is the best, because soft. Dope them well. Make sure to have long shirt sleeves, and fasten them snugly. I have found good elastic bands a big help, and prefer to have the shirt sleeves sewed up right down to the cuff, so I can just manage to get my hands through. Button, fold over and secure with a good flat rubber band.

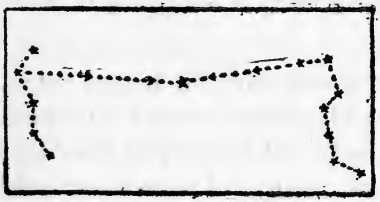
Don't sleep in damp blankets; or rather, don't let them stay damp, but dry them before night for you'll have to sleep in them, damp or dry. Damp blankets are bad medicine.

To sleep warm if you have to bivouac in cold weather, and have a good full-grown axe and know how to use it,

first build a good big fire on the place where you want to make your bed. When this has burned down, say in an hour, rake it to one side, clear away embers and ashes, and make your bed on the warm, dry ground where the fire has been. Build two slow fires, one on each side of you; or have a big rock or a thicket for a windbreak and build a fire *beside* this, not behind it, but out where the wind will hit it. The warm air from the fire will eddy around behind your windbreak, if you have chosen your location wisely and have the fire in the right place.

Look for butternut (white walnut) trees at the bottom of a hill.

If you cannot see the Big Dipper in the sky at night, which you know appears to revolve around the North Star once in 24 hours, remember that opposite the Big Dipper on the other side of the North Star and the same distance from it is a big irregular W of stars, known as Cassiopeia's Chair. There are six stars, five of which are bright. An imaginary line drawn from the bottom of the most acute of the two triangles of the W and bisecting it will lead nearly straight to the North Star. Familiarize yourself with this constellation and you will be the better equipped to follow a star line.



The Compass in the Sky. Left, Cassiopeia's Chair; Centre, North Star; Right, Big Dipper

In prairie country, if you have no wood, hunt for cattle chips to make your fire. I can't tell you how the old-time

plainsmen managed to make a fire with buffalo chips on a rainy day, unless they carried a reserve supply of them. More likely they carried kindling. And that is not a bad hint for you. A stick or two of pine in your pack will not burden you, and will go a long way in getting less suitable material to burn.

Buckle spurs with the buckle on the inside of the instep, not the outside, if you want to wear them cowboy fashion.

The best ski and snowshoe bows are necessarily made of split wood.

If travelling in a country of no bridges and you come to a stream or river, be sure to cross before you make camp. Otherwise the water may rise or a storm come up and prevent you from going on the next day.

In fording a deep, swift stream, be sure you carry your pack so it will fly off if you fall, or it may drown you. Two or three Scouts together, carrying a pole, can wade a stream that would sweep a lone Scout off his feet. The heaviest Scout and heaviest end of the pole belong upstream, and all should walk abreast.

A few acetic acid crystals put in the coffee pail will render coffee made from alkali water fit to drink, providing the water is not too strongly impregnated with the hydrates.

In the Pacific Coast country a chinook (a warm wind in the spring) may have the same effect upon a stream as a cloudburst. Don't camp on the near side, and be sure you are above possible high water; the driftwood is your guide.

If using more than one pack animal, let one carry the grub and cooking utensils, so you will have but that one to unpack to get your supper started. As for dinner or lunch, good packers seldom eat during the middle of the day if travelling, or at best take only a snack.

Plainsmen use sods to make a fireplace, especially if cooking with cattle chips. Dig a square hole 10 inches deep and have a shallow trench leading off from it. Cover this trench with sods, making a flue. It should slope downward to the fire-hole, which should be deeper than it.

You can make a good shelter for the night with cordwood or with a cornshock. Don't despise material already cut for you.

To make lemonade capsules, get some 1-ounce gelatin capsules, and your sugar and lemons. Squeeze the lemons out over the sugar, and let stand till dry. Pulverize and put up in the capsules. A capsule will make a cupful. A gentleman by the name of Barnard who has done a great deal of hiking told me this about a year ago, and it is one of the best tricks I know.

The first "tent" I ever had was a tepee made with poles and sods. It was a good one, too, after I found out how to get a draught in it so the smoke would go out the smoke-hole and rigged a couple of smoke-flaps made of some old carpet. I had to make holes around the bottom by taking out a sod here and there, to let the air in. Then I made a wind-wall inside by hanging some of the carpet from the poles; this kept the draught from annoying me and shot it up along the roof, and out the smoke-hole with the heated air from the

fire. I don't advise you to attempt a similar tepee, but I know you can make an excellent lean-to with poles and sods. Use *heavy* poles — and put it up to stay, with its back to the direction from which the prevailing winds will blow. The grass will grow on it and you'll have a "soddy." Such a little house with the little prairie sunflowers growing all over it will make a never-to-be-forgotten rendezvous.

To dip clean water, put cup or pail well down under the surface and raise quickly. The upward rush of the water will carry off floating "dirt" in the water on or near the surface and you will have the clean water from below.

To "roll" in a blanket, lie down with it spread across you; raise your legs with the knees stiff and with your hands alternately "flip" each side of the blanket under you, one on top of the other. Lower feet, raise on heels and shoulders and tuck under your hips. Now if you roll one way or the other, you will always have your blanket around you. Some believe that if you lie face downward you will not sleep so cold. I am sure I can't say; but I sleep that way a good deal.

Warm an axe before chopping in very cold weather, or it may chip. Chopping keeps it warm. Choppers use their mittened hands to produce the desired warmth when necessary. Not so necessary if you have the right axe.

Hunt a hollow for a bivouac in cold weather. But remember that the wind will blow up a ravine or draw, and that low ground may be damp ground — generally is damp ground. An ideal place would be a little mound in a thicket in a closed-in hollow. A high hill, bluff or cliff near by will cause a draught.

In mountain climbing remember that the grass is often more treacherous than the steepest "slide." Small Hungarian hob-nails are the best. Some like screw-hobs, like the calks the river drivers use, but blunt instead of pointed. They have a square head and are put in with a wrench. A few well scattered are much better than too many.

Land a canoe by bringing it broadside on to the shore, if possible. Beware of rough rocks. Step into a canoe right over the keel; never in fact ever step anywhere else in it.

A stretcher will be cold on a cold night unless you put a folded blanket under you.

An ordinary canvas duffle bag with the top tied like a grain bag, makes a moth-proof storage place for woollen blankets and the like when at home. That is how I keep all my woollen camp duffle.

Moths will destroy the feathers of artificial flies.

Don't soak a gut leader (for fishing) over night; too much dampness rots it. Soak till soft, then stretch straight on the wall between two pins.

A fire-jack made of light steel, $\frac{1}{8}$ x $\frac{1}{4}$ inch, made to fold up, is good patrol equipment if a cart or other conveyance is used. Make it 8 x 20 inches, with 3 crosspieces, and legs to fold. When you have the steel, all you need is a breast-drill, a bit and some rivets. See diagram.

A Patrol Fire-Jack; Folds Flat

To get a drink with your hat, use the *top* of it; don't be a chump and dip the water *in* it. Double it, with the rim in your hand, and drink out of the point of the crushed-in crown.

You cannot place too much importance upon getting good water. The Indian and the old-timer first find water, then camp; the tenderfoot camps first, then hunts water.

Pitch your tent on a bit of ground having natural drainage if you can, so you will not need to ditch it.

Find your camp-site at least an hour before dark, unless pressed hard for time; take more time if necessary.

When the low mists over a lake or a river clear quickly in the morning clear weather may be expected.

Carry quinine if in a malarial country. Carry a cathartic if out for a couple of days or more.

Don't ever carry a loaded gun in a carriage, wagon or boat. And never point a gun at any one, even if you are absolutely sure that it is not loaded. Do not permit any one who persists in playing the fool to remain in your company. I have known a number of boys and men to be badly shot due to improper handling of guns, some of them friends of mine.

A lantern will warm a closed tent considerably, and a charcoal fire in a galvanized bucket, with holes cut in the sides near the bottom and a lid on top, will be found a blessing on a rainy day. Scatter the embers of the fire and you will have charcoal. If you wish to make it purposely, burn willow.

It is a good stunt to make your stretcher narrower in the middle than at the ends. The poles will bend with your weight even when guyed out. If you have provided for this your stretcher will be taut when loaded. A piece of heavy unbleached sheeting 45 inches wide and 6½ feet long will make you a good stretcher and also be handy for a variety of purposes. Hem 1½ inches deep on the long sides, and sew in grommets, about a dozen on each side. With a piece of sash-cord you can lace this sheet about a frame of poles, and of course will draw the edges closest in the centre, where the greatest bend of the side poles comes. Lace on one side, around one of the poles, so you will not lie on the rope. I like a pole at head and foot of a stretcher, but you can do without them, especially if your bed sags. For my part, I want a bed that lies straight.

Never toss away a burning match. *Put it out!* Of all the fools there are, he is the biggest who tosses burning matches.

It is fun to transplant a seedling once in a while. I often have done it. If you find a little tree that hasn't any show where it is growing, change it to a better place. But be sure you know how to transplant and that you have water. The water is necessary to settle the earth so the air will not get to the roots. Too much air, dead seedling.

Transplanting a Seedling. A Good Scouting Service

Every hiker accumulates about twice as big an outfit as he needs. Some day, for an experiment get out all the

things you think you want to carry and pile them all up together. It will appall you, if you are so fortunate as to be able to satisfy even half of your desires. Too much! Cut it down to the things you cannot do without.

If you live in the West, it is a good thing to know that a strong tea made with the leaves of sage brush cures mountain fever. You cannot drink too much of it, for it is fierce stuff to swallow and you will quit the minute you begin to feel better.

Heat a number of round rocks the size of croquet balls, enough to more than fill a galvanized water pail, and dump in a hole in the ground the size of the pail, but half a foot deeper. Fill the interstices with smaller hot stones. Invert the pail over the hot stones, and bank around with earth. You've got a fireless heating stove that will keep a 9 x 9 wall tent warm all night.

The best hiker's coat, when you wear one, is a mackinaw reefer.

Mercurial ointment is the best rust preventive I know of. I use it in my guns.

Every fellow who ever amounts to anything as a runner, runs "on his toes." He adds "knows how" to natural ability. Don't be a flatfoot — at anything.

THE END

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